

KENTUCKY ECONOMY

Review & Perspective

THE KENTUCKY COUNCIL OF ECONOMIC ADVISORS
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KCEA Review and Forecast

By Charles W. Hultman*

Although the mild recession projected for 1979 failed to materialize, Gross National Product (GNP) did drop sharply in the second quarter of last year. Furthermore, the strength reflected in the last two quarters that contributed to the annual real growth rate of 2.3 percent in 1979 is expected to diminish as 1980 progresses. The mixture of statistical information continuing to be available indicates the difficulty of forecasting a downturn: the U.S. Commerce Department's revised figures show that real GNP increased at a 2.1 percent annual rate during the fourth quarter of 1979—much higher than the initial 1.4 percent reported. But strong inflationary pressures exhibited in January of 1980 and the decline in the Composite Index of Leading Indicators for the fourth consecutive month suggests the likelihood of at least a mild downturn.

It should be noted that, except for inflationary pressures, the U.S. economy has generally performed reasonably well since the expansionary phase started in late 1975. The expansionary phase itself has been relatively long, real GNP has increased more than 20 percent, and, more recently, over 60 percent of the working-age population has been working. However, inflationary pressures in recent months have become increasingly severe—the worst that have been experienced since the immediate post-World War II period.

The Wharton Quarterly Model (dated January 28, 1980) projects real GNP to decline from 1 to 2 percent during the first two quarters of 1980; a slight gain during the last two quarters would lead to a small overall decline on an annual basis. Whether or not a recession occurs during 1980 remains uncertain; as a minimum, a leveling off in economic activity can be expected.

Inflation will continue to be a problem in 1980. A 13.74 percent projected increase in the Consumer Price Index for 1980 would be somewhat greater than the increase experienced in 1979. The unemployment rate of 5.79 percent in 1979 would continue to rise, reaching 6.9 percent in 1980 and 7.7 percent in 1981. Residential construction and net exports are projected to decline and real consumer durable spending would grow only marginally during the year. The bank prime loan rate is forecast to rise to 13.55 percent in 1980; the personal savings rate, which was about 4.5 percent in 1979, is

expected to remain slightly below 4 percent for the next year or two.

The most recent forecast provided by the Kentucky Quarterly Econometric Model (dated February 15, 1980) is somewhat more pessimistic than the one developed three months ago. Kentucky Personal Income (in money terms) would rise by 8.5 percent in 1980 and an additional 10.0 percent in 1981 from the \$26.238 billion of 1979. A Personal Income gain of this magnitude suggests that per capita real income would increase little, if at all, during the next year or so. Nonagricultural wage and salary employment would decline slightly more than 2 percent in 1980 but rise about 1.25 percent in 1981. The major decline in 1980 would occur in contract construction and the durable goods industries. A mild decline would occur in the regulated industries and in wholesale and retail trade. Employment in the remaining industries, including nondurable manufacturing, government employment and coal mining, would remain about the same in 1980 as in the preceding year.

The Kentucky unemployment rate can be expected to rise more than one-half of a percentage point in 1980, and remain almost unchanged in 1981. Total employment in the state would decline from an estimated 1,514 thousand in 1979 to 1,502 thousand in 1980, but up again in 1981 to 1,531 thousand.

As noted in the last issue of *Review and Perspective*, a key element in the projections for 1980 and 1981 is the rate of inflation and governmental response through changes in credit conditions. The recent decision on the part of the Carter administration to reevaluate the economic situation suggests federal policies may be modified or altered or that new measures may be used to achieve stated goals. In any event, strong inflationary pressures exhibited in January of 1980, along with increasingly tight credit conditions and renewed efforts to reduce the size of the federal budget deficit, suggest that Kentuckians can expect high unemployment rates in some sectors of the state economy along with continued problems with inflation.

*Charles W. Hultman is the Associate Dean of the Office for Research, College of Business and Economics, University of Kentucky, and Chairman of the KCEA.

KCEA News & Notes

The staff of the Kentucky Council of Economic Advisors continues to conduct training sessions in the use of the Kentucky Economic Information System (KEIS) for state government personnel who wish to use the Frankfort version of the KEIS. In recent months KEIS/Frankfort training sessions were held at the offices of the Secretary of the Department of Finance, the Center for Program Development in the Bureau for Social Insurance and at the Bureau of Child Support Enforcement, both in the Department for Human Resources, and at the Divisions of Research in the Departments of Labor and Transportation. In addition to personnel at these offices, staff from the Kentucky Occupational Information Coordinating Committee and from the Office of Policy and Budget

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This quarterly publication is intended, primarily, to provide forecasts and current information concerning the Kentucky economy. More generally it provides a forum for the publication of short, expository articles dealing with current research or information systems, the focus of which is some aspect of the Kentucky economy.

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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of the Department for Human Resources participated in the training sessions. Personnel at the Kentuckiana Regional Planning and Development Agency (KIPDA ADD), Louisville, are also among the recent users of the KEIS/Frankfort. State agency personnel who wish to schedule a KEIS/Frankfort training session should contact Margaret Adams, Manager, Kentucky Economic Information System (606) 258-4626.

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Several additions have recently been made to the software of the KEIS/Frankfort. Persons who are logged on to TSO on the state government computing network can access the KEIS Procedure by simply typing KEIS after the TSO READY statement. This replaces the command, EXEC 'CEA.EIS'. Enhancements to the KEIS/Frankfort are described on page 10 of this issue.

* * *

The Kentucky Economic Information System (KEIS) on the Kentucky Educational Computing Network (KECNET) has also been enhanced. Users of the KEIS on KECNET now can have single command access to any of the hundreds of thousands of pieces of information stored in the databases of the KEIS. The command to do this is described in the March issue of the University of Kentucky Computing Center's newsletter, *The Kentucky Register*, in an article by Roy A. Sigafus. For further information about this, please contact Mr. Sigafus (606) 258-4626.

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On January 22, 1980, Dr. Charles G. Renfro, Acting Executive Director of the KCEA, appeared on a panel before the Kentucky Joint Legislative Committee on Appropriations and Revenue. Dr. Renfro discussed the economic outlook for the United States and for Kentucky in the forthcoming biennium. Other panel participants were Dr. Charles Haywood, former Chairman of the KCEA, Dr. Lawrence K. Lynch, former Executive Director of the KCEA, and Richard Sims of the Legislative Research Commission.

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The 1980 KCEA Annual Report is in the final stages of preparation and should be published during the second quarter, 1980. The 1980 KCEA Annual Report contains extensive analyses of the U.S. and Kentucky economies by Dr. Charles Renfro, as well as his detailed quarterly forecasts for the coming two years. Dr. Renfro was one of the economic forecasters who did not forecast a recession for 1979 and his articles in the Annual Report consider this issue and project sluggish performance of the national economy, but no recession for 1980; he also considers the possibility that government policies yet to be implemented could precipitate a recession. He also includes the forecast of the U.S. economy released recently by Wharton Econometric Forecasting Associates, who forecast two quarters of decline in real Gross National Product in 1980, followed by a slow recovery.

(continued on page 11)

Kentucky Econometric Model Forecast

By Charles G. Renfro*

This forecast for Kentucky is based upon the assumption of a two quarter decline in real GNP in the first half of 1980, followed by a sluggish recovery in which federal defense expenditures represent the principal area of rapid growth. The forecast assumptions include predictions of the values of national economic variables taken from the January 28, 1980 *Pre-Meeting Control Forecast* made by Wharton Econometric Forecasting Associates, using the Wharton Quarterly Econometric Model of the United States.

The national forecast is based upon the presumption of continued tight monetary policies and no tax cut in 1980. The likely impact on Kentucky of this national scenario is shown in tables on this page and pages 4 and 5 to include a four quarter decline in Kentucky nonagricultural wage and salary employment, beginning in the first quarter of 1980. Only at the beginning of 1981 is a recovery in this type of employment projected to begin. In contrast, there is a continuing increase in total Kentucky personal income during the whole of the forecast period; however, inflation may remain at near double digit levels in both 1980 and 1981, so that real income declines slightly in 1980 and increases negligibly in 1981. Compared to the Kentucky forecast in the last issue of *Review and Perspective*, this forecast suggests weaker performance of the Kentucky economy, a result that is due to the Wharton projected continuation of high interest rates and a more sluggish national recovery in late 1980.

*Charles G. Renfro is Acting Executive Director of the KCEA.

ANNUAL SUMMARY TABLE
SELECTED ECONOMIC INDICATORS

Description	1979	1980	1981
Personal Income (Millions)	26238.2	28470.8	31321.6
% Chg.: Ky. Personal Income	13.52	8.51	10.01
Real Personal Income (1972 \$)	16061.7	15902.1	16199.2
% Chg.: Ky. Real Personal Income	4.23	-0.99	1.87
Wage and Salary Disbursement	15872.1	17008.6	18788.2
Mfg. Wage & Salaries	4628.9	4838.0	5394.7
Non-Mfg. Wage & Salaries	11243.3	12170.7	13393.4
Non-Agri. Wage & Salary Empl.	1259.6	1233.0	1248.4
% Chg.: Ky. Non-Ag. Empl.	2.26	-2.11	1.25
Manufacturing Employment	291.8	280.4	288.8
Durable Goods	166.8	154.5	159.6
Non-Durable Goods	125.0	126.0	129.2
Non-Mfg., Non-Agri. Empl.	967.8	952.6	959.6
Civilian Labor Force	1623.7	1622.3	1653.8
Ky. Unemployment Rate (%)	5.7	6.3	6.4

The purpose of this forecast is simply to indicate the effect on Kentucky if the January 28 Wharton national forecast were to be realized. A more detailed assessment of the economic outlook for Kentucky and the United States is provided in the *1980 KCEA Annual Report*. It is important to note also that all the figures shown for 1979 are forecasts. Only for certain months and quarters of 1979 have solidly based estimates so far been published; these can be retrieved from the Kentucky Economic Information System data banks.

QUARTERLY FORECAST TABLE
SELECTED ECONOMIC INDICATORS

Description	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4
Personal Income	27794.6	28134.6	28661.8	29292.2	29936.2	30802.8	31842.5	32704.9
% Chg.: Ky. Personal Income	8.78	4.98	7.71	9.09	9.09	12.09	14.20	11.28
Real Personal Income (1972 \$)	16010.7	15868.3	15852.7	15876.5	15906.6	16076.6	16329.5	16484.3
% Chg.: Ky. Real Pers. Income	-2.30	-3.51	-0.39	0.60	0.76	4.34	6.44	3.85
Wage and Salary Disbursement	16717.4	16879.9	17029.0	17408.4	17915.9	18476.6	19083.0	19677.2
Mfg. Wage & Salaries	4882.0	4827.7	4752.8	4889.3	5149.7	5319.6	5488.4	5621.2
Non-Mfg. Wage & Salaries	11835.3	12052.2	12276.2	12519.0	12766.2	13156.9	13594.6	14056.0
Non-Agri. Wage & Salary Empl.	1244.0	1234.5	1228.8	1224.8	1230.8	1242.3	1256.0	1264.6
% Chg.: Ky. Non-Ag. Empl.	-1.67	-3.00	-1.83	-1.31	1.99	3.79	4.47	2.77
Manufacturing Employment	285.7	281.4	277.7	276.9	282.1	286.7	291.6	294.9
Durable Goods	159.4	155.4	151.9	151.1	155.7	158.6	161.3	162.8
Non-Durable Goods	126.4	126.0	125.8	125.8	126.5	128.0	130.3	132.0
Non-Mfg., Non-Agri. Empl.	958.2	953.1	951.1	947.9	948.7	955.7	964.4	969.7
Civilian Labor Force	1625.3	1621.6	1621.3	1621.1	1631.0	1646.7	1663.3	1674.4
Ky. Unemployment Rate (%)	6.1	6.3	6.4	6.5	6.5	6.5	6.4	6.2

Forecast Date: February 15, 1980.

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selected indicators OF ECONOMIC ACTIVITY

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

	Oct. 1979	Nov. 1979	Dec. 1979	Qtr. IV 1979	% Chg. 79-111 79-IV	% Chg. 78-IV 79-IV
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UNITED STATES DATA

CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	222.89	223.20	223.50	222.89	-0.3	1.1
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	244.57	244.57	244.57	244.57	0.0	0.0
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	240.79	240.79	240.79	240.79	0.0	0.0
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAREL & ORATE	171.53	171.53	171.53	171.53	0.0	0.0
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	225.10	225.10	225.10	225.10	0.0	0.0
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	246.29	246.29	246.29	246.29	0.0	0.0
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	154.73	154.73	154.73	154.73	0.0	0.0
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	203.07	203.07	203.07	203.07	0.0	0.0
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)						
PRODUCER PRICE INDEX, ALL FARM AND GOODS	226.50	226.50	226.50	226.50	0.0	0.0
PRODUCER PRICE INDEX, FARM AND CONSUMER GOODS	226.50	226.50	226.50	226.50	0.0	0.0
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	226.50	226.50	226.50	226.50	0.0	0.0
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	245.53	245.53	245.53	245.53	0.0	0.0
PRODUCER PRICE INDEX, CRUDE MATERIALS	292.23	292.23	292.23	292.23	0.0	0.0
PRODUCER PRICE INDEX, CRUDE FOODS, FEED, AND LEEF-HOFF	247.73	247.73	247.73	247.73	0.0	0.0
PRODUCER PRICE INDEX, RUBBER, LEATHER, AND INDUSTRIAL, SPECIALTY, INDEX	394.13	394.13	394.13	394.13	0.0	0.0
PRODUCER PRICE INDEX, RUBBER, LEATHER, AND INDUSTRIAL, SPECIALTY, INDEX	128.90	128.90	128.90	128.90	0.0	0.0
LABOR FORCE (SEASONALLY ADJUSTED)						
LABOR FORCE, CIVILIAN (BILLIONS)	103.75	103.75	103.75	103.75	0.0	0.0
EMPLOYMENT, TOTAL (BILLIONS)	97.66	97.66	97.66	97.66	0.0	0.0
UNEMPLOYMENT RATE, TOTAL	5.87	5.87	5.87	5.87	0.0	0.0
UNEMPLOYMENT RATE, BLACKS & OTHER MINORS	11.22	11.22	11.22	11.22	0.0	0.0
OTHER SELECTED NATIONAL INDICATORS						
FEDERAL RESERVE, TOTAL, SEASONALLY ADJUSTED (BILLIONS OF \$)	2000.50	2000.50	2000.50	2000.50	0.0	0.0
CONSUMER INDEX OF 12 LEADING INDICATORS (1967=100)	137.82	137.82	137.82	137.82	0.0	0.0
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	137.82	137.82	137.82	137.82	0.0	0.0
UNEMPLOYMENT RATE, YIELD ON 3 MONTH TREASURY BILLS	11.80	11.80	11.80	11.80	0.0	0.0
PRIVATE RESIDENTIAL BLDG. 15,000 SQUARE FEET OR MORE (5000 HOUS)	4009.00	4009.00	4009.00	4009.00	0.0	0.0
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (BILLIONS OF \$)	301.50	301.50	301.50	301.50	0.0	0.0

KENTUCKY DATA

LABOR FORCE (NOT SEASONALLY ADJUSTED)						
LABOR FORCE, TOTAL (CIVILIAN THOUSANDS)	1509.40	1570.70	1563.00	1578.97	0.83	0.10
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE (THOUSANDS)	1509.90	1497.40	1478.00	1474.73	-0.02	-0.40
EMPLOYMENT, AGGREGATE	90.90	91.50	90.10	74.50	-9.10	-2.27
EMPLOYMENT, TOTAL NON-AGGREGATE	1419.00	1485.90	1487.90	1443.23	-3.13	-3.63
UNEMPLOYMENT RATE (NOT SEASONALLY ADJUSTED)	5.10	5.30	5.80	5.33	0.23	1.23
EMPLOYMENT, TOTAL NON-AGGREGATE (THOUSANDS)	1278.00	1297.90	1297.90	1295.00	-0.23	-0.20
EMPLOYMENT, AGRICULTURE, FORESTRY, FISHING, & MINING (CIC 1-3)	50.50	51.00	49.90	50.40	1.00	0.40
EMPLOYMENT, CONSTRUCTION (CIC 2-1)	74.80	74.80	72.10	72.10	-3.73	-3.73
EMPLOYMENT, TOTAL MANUFACTURING	291.00	292.60	295.20	292.93	-0.01	1.93
EMPLOYMENT, MANUFACTURING, NON-DURABLE	166.50	167.40	168.40	166.73	-0.02	-0.03
EMPLOYMENT, MANUFACTURING, DURABLE	124.50	125.20	126.80	126.20	-0.60	-0.60
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	70.50	70.40	70.40	70.43	0.03	1.93
EMPLOYMENT, WHOLESALE & RETAIL TRADE	271.20	271.10	270.80	275.37	1.57	0.00
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (CIC 20-22)	50.60	51.10	50.70	50.80	0.10	0.10
EMPLOYMENT, SERVICES (CIC 20-80)	209.10	209.20	208.30	208.87	0.57	0.57
EMPLOYMENT, CIVILIAN GOVERNMENT	214.40	215.00	215.00	215.33	0.33	0.33
EMPLOYMENT, STATE & LOCAL GOVERNMENT	192.00	194.10	193.00	193.97	0.97	0.97

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The Kentucky Unemployment Insurance Program

By Charles W. Hultman*

One of the most comprehensive programs in the Commonwealth to partially offset a temporary loss of wage income is the Unemployment Insurance System. By late 1979, approximately 929.9 thousand Kentucky workers—about 60 percent of the total civilian labor force—were covered by unemployment insurance. With the inclusion of approximately 245 thousand reimbursable and public service employment establishments, about 75 percent of the labor force is covered.

The number of subject firms has also increased significantly in recent years because of expanded coverage. For example, in 1970, approximately 27,300 Kentucky firms were covered; by the end of 1979, 61,500 firms were included.

Unemployment insurance programs were initiated by all states in the late 1930s as a result of incentive provided by the federal government under the Social Security Act. Although they are the same in principle, the programs of the various states differ considerably in terms of details.

An analysis of a state's unemployment insurance program must focus on three basic questions: Are the benefits paid to unemployed workers adequate? Do contributions required of employers put firms in a state at a cost disadvantage compared with those in other states? Do employer contributions cover employee benefits over time in a way to maintain an adequate reserve balance and solvency of the system? A complete answer to these questions involves value judgments as well as extensive analysis and comparison. This short article will simply summarize developments in the Kentucky Unemployment Insurance Program as well as indicating certain tentative conclusions.

The major purpose of the Unemployment Insurance Program is to provide, as a minimum, a subsistence level of income for the worker whose employment has terminated through no fault of his (her) own. When an eligible worker becomes unemployed, he is entitled to benefits of a specified amount from the state Trust Fund for a specified period of time (usually a maximum of 26 weeks). The Trust Fund is maintained as a result of payments (contributions) made by employers; payments are based on the employers' employment and unemployment record and upon the size of the balance of the respective state Trust Fund.

Benefits from the program cover unemployment from seasonal, cyclical and irregular movements in economic activity. Unemployment in Kentucky is generally highest during the first three to four months of the year; lowest, in mid to late summer. On an annual basis, the highest unemployment in the state in recent years was in 1975, the last trough in economic activity. Unemployment also increases on an irregular basis; in early 1978, for example, severe weather conditions and a natural gas shortage led to layoffs in many parts of the state.

The maximum benefit now received under the Program is \$120 per week (55 percent of the state's average weekly wage); about one-half of the unemployed workers received the maximum. Because of inflation, the average weekly wage in covered employment and, accordingly, the weekly benefit amount has increased significantly in recent years. The average weekly benefit amount, which stood at \$60.00 in 1975, rose to \$91.46 in 1979.

During the past few years, the unemployment tax for Kentucky firms has ranged from a low of 0.4 percent of taxable wages of \$6,000 (for the firm with a large Trust Fund balance) to a high of 5.1 percent of taxable wages (for the firm with a large negative Trust Fund balance). On average, employer taxes were about 2.4 percent of taxable payroll in 1979. When the aggregate balance in the state Trust Fund is low, all firms automatically shift to a tax schedule with higher rates; when it is high, they shift to lower rates. Although the program is designed to raise and lower rates automatically to insure that over time employer contributions cover benefit payments, severe inflation, legislative changes in benefit payments, and other factors, it is required that occasional legislative changes be made to insure that the Trust Fund balance is maintained.

An indication of developments affecting the Kentucky Trust Fund balance during the past decade is provided by Table 1. At the beginning of 1970, the Trust Fund balance stood at about \$170 million, and the program covered about 629 thousand workers. Program coverage gradually increased through the first half of the 1970s, but the Trust Fund balance grew because of the low unemployment rate and the excess of employer contributions over employee benefits.

In 1975, Kentucky and the rest of the nation were affected by a sharp recession. Insured unemployment in the Commonwealth rose to 5.8 percent, and benefit payments rose to \$150.4 million dollars. The Trust Fund balance subsequently dropped to slightly more than \$100 million (April 1976) but then commenced to increase as economic recovery continued and unemployment declined somewhat. During 1979, with an average insured unemployment rate of 3.5 percent, total benefits paid out amounted to \$137.7 million; employer payments (contributions) to the Fund amounted to \$126.8 million. Interest received on the invested balance, along with minor adjustments, meant that the year ended with a Trust Fund balance of \$156.0 million, almost \$7.5 million less than the balance at the beginning of the year.

It is clear from the figures in Table 1 that as the program moves into the 1980s, the magnitudes involved are significantly greater than those that prevailed in the early 1970s. The

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TABLE I
FACTORS AFFECTING KENTUCKY TRUST FUND BALANCE, 1970-80

Year	Covered Employees* (Thousands)	Insured Unemployment Rate (Percent)	Fund Balance: December 31 of Preceding Year (Millions)	Employer Contributions (Millions)	Employee Benefits (Millions)
1970	629.2	3.2	\$171.0	\$ 28.2	\$ 34.1
1971	642.6	3.5	173.1	31.2	42.2
1972	720.9	2.7	170.8	40.5	39.7
1973	770.5	2.2	177.9	54.6	42.8
1974	794.9	2.8	198.5	69.5	60.2
1975	744.2	5.8	219.2	55.2	150.4
1976	813.2	4.0	135.8	88.8	107.0
1977	857.5	3.4	123.8	110.1	97.4
1978	908.9	3.3	144.0	113.8	101.8
1979	929.9	3.5	163.5	126.8	137.7
1980	NA	NA	156.0	NA	NA

*Does not include reimbursable and public service employment establishments.
NA = Not available.

SOURCE: Kentucky Department for Human Resources.

number of employees covered is about 48 percent greater than in the early 1970s. If reimbursable and public service employment were included, it would be about 85 percent greater than in the early 1970s. In addition, the growth in wages and the weekly benefit amount results in employer contributions and employee benefits that are substantially greater than in the early 1970s.

A major area of concern in the operation of each state's unemployment insurance program is the financial position of that system. During the period from 1972 through 1978, twenty-three different states, the District of Columbia, Puerto Rico, and the Virgin Islands experienced unemployment levels and changes in unemployment insurance systems which resulted in the insolvency of their trust funds. Consequently, during this period, the twenty-six units found it necessary to secure advances from the federal government ranging from a low of \$1.9 million (Ohio) to a high of \$1,187.3 million (Pennsylvania). Kentucky was fortunate in that although it was necessary to move to a higher schedule of employer tax rates, the solvency of the system was never in serious question. Nevertheless, given the increased coverage of the program, the high rate of inflation and the resulting impact on wage rates and weekly benefit amounts, as well as other uncertainties of an economic nature, the financial position of the system must be constantly assessed.

What is the outlook for the Trust Fund balance for the next few years? Clearly, it depends upon economic developments in the Commonwealth. Expected inflation of wages and the resulting increase in both the maximum and average weekly benefit amount, with all other things remaining equal, will mean a larger drain on the Trust Fund. At the same time, aggregate taxable wages will rise somewhat and all firms could shift to a tax schedule with higher rates, leading to an increase in contributions to the Trust Fund. Perhaps the most important variable is the unemployment rate; if this were to rise significantly and remain at a high level over an extended

period of time, the Trust Fund balance could be expected to decline to an unprecedented low. Given the increase in both the insurance coverage and the average benefit amount since the early 1970s, it would appear prudent that the Trust Fund balance be gradually increased and maintained at a higher average level in coming years.

An assessment of the Kentucky Unemployment Insurance Program is tentative at best. It should be noted, however, that in 1978 (the latest year for which comparable figures are available), Kentucky was ranked 25th in the nation in terms of average weekly wage (\$216.99), but that Kentucky was 14th in the nation with an average weekly benefit amount of \$91.46. In addition, Kentucky does not require a one-week waiting period before an insured unemployed worker is eligible for benefit payments.

Kentucky's cost figure is also favorable. For example, during the period 1970-77, the ratio of annual benefit costs to total wages for Kentucky was 1.07 percent; for the nation as a whole, the comparable figure was 1.24 percent. Furthermore, in 1978, the Kentucky employers' average tax rate (on taxable payroll) was 2.2 percent, which was approximately the median figure for the entire nation.

The state program has also had at least a mild counter-cyclical impact. During years in which the unemployment rate has been below average, employer contributions to the Fund have generally exceeded benefit payments; when the unemployment rate has been above average, benefit payments have exceeded employer contributions.

The state has been able to maintain an adequate Trust Fund balance to ensure the solvency of the system. As is true with most other states, inflation and unemployment have focused attention on the need for continued monitoring of the system to ensure an adequate balance in the Trust Fund. Ultimately, of course, it is the ability of the economy to provide jobs and minimize the unemployment rate that keeps the insurance program strong.

Enhancements to the Frankfort Version of the KEIS

By Margaret O. Adams*

Several enhancements have recently been made to the KEIS/Frankfort. As soon as possible, these changes will be documented and owners of the *Kentucky Economic Information System User Manual* who have participated in the KEIS/Frankfort training sessions will receive a revised Frankfort Supplement to the manual. In the interest of timeliness, however, a brief description of these changes is included here. The description assumes that the reader is familiar with the KEIS Procedure of the Kentucky Economic Information System/Frankfort. The enhancements are the work of Charles G. Renfro and Roy A. Sigafus and either of them may be contacted for further information at (606) 258-4626.

Program TABLE: TABLE is a program which produces standardized tables of data for the most recent five periods (years, quarters, or months) that are stored in the database of the KEIS. The user types in TABLE when asked (by the KEIS Procedure) to enter the name of the program he or she wishes to prepare and is then given a choice of preparing either the complete set of tables, or a partial set. If he chooses not to prepare the full set, he is asked to name the bank from which he does want standardized tables: ABANK (annual bank), QBANK (quarterly bank), MBANK (monthly bank), or CBANK (county bank). Sample output from Program TABLE is reproduced on page 12 of this issue of *Review and Perspective* and shows one of the annual bank tables, Table 6: "Transfer Payments to Kentuckians, By Program."

Program DTP/DTP1: The Data Transformation Program (and the interactive version, DTPI) now has several additional capabilities. These build upon the commands described in Section 4.5 of the Frankfort Supplement to the *KEIS User Manual*. The new commands must be preceded by the INPUT BANK and SET DATES commands described in the Frankfort Supplement. The new command are:

LOG: The log command allows a user to obtain a complete or partial log of a specified databank. A log is similar to a databank index; the primary purpose of the log is to indicate the most recent date of revision or update of the data series listed. To obtain a log of an entire databank, the form of the DTP(DTPI) command is: LOG ABANK (or QBANK, MBANK or CBANK). The form of the partial log command is LOG ABANK (1-20) for a log of ABANK series 1 through 20. Any other set of series numbers may be used. We strongly urge that those wishing a log of more than about twenty series, and certainly those requesting a log of an entire databank, run this request in batch mode (not interactively) and route the output to a printer.

SPOOL QUERY: The SPOOL QUERY command allows a user of DTPI to save the output from his query so that

it can be obtained in printed form after he has finished using the DTPI program. This option is especially designed for persons who are using the program DTPI at a CRT, or video, terminal and wish to obtain their output in printed form, after first viewing it on the screen. The procedure for doing this is to enter the command: SPOOL QUERY immediately after the query has been received. Then, after the user completes his use of the DTPI program, he is asked by the KEIS Procedure whether he wishes to RETURN (R) or LEAVE (L) and to enter the letter. If either 'R' or 'L' is entered, it is assumed that the user does not want printed copy of the spooled information and it is deleted. If, however, PRINT is entered at this point, the user will be offered an opportunity to change the print option. (See p. 4.2.9 of the Frankfort Supplement to the *KEIS User Manual*.) The spooled data will then be printed on the printer indicated and the user will be returned to the RETURN or LEAVE point.

COMPUTE STATISTICS: The command, COMPUTE STATISTICS: followed by the series name and the series number (in parenthesis) will produce the mean, the standard deviation, the variance, and trend statistics for the data series requested, for the time period set. These statistics can be computed for any number of series within a databank; the command will be similar to the example given for computing statistics for Kentucky personal income.

COMPUTE STATISTICS:YS(1)

with each following series name(series number) separated by a comma.

The user who does not wish all these statistics also has the choice of selecting those he does want. For example, any of the following commands can be entered:

COMPUTE MEAN:YS(1)

COMPUTE STANDARD DEVIATION:YS(1)

COMPUTE VARIANCE:YS(1)

COMPUTE TREND STATISTICS:YS(1)

COMPUTE CORRELATION: The command, COMPUTE CORRELATION: followed by at least two series names (and their numbers in the standard DTP format) will produce the correlation between two (or more) data series from the KEIS database. Each series name(series number) is separated by a comma.

COMPUTE ABS % CHG: The command, COMPUTE ABS % CHG: followed by a series name and the series number (in parenthesis), followed by the starting time period, followed by the end time period—both time frames

*Margaret O. Adams is Manager of the Kentucky Economic Information System and editor of this publication.

having been enclosed in parentheses and internally separated by a comma, will produce a calculation of the absolute percent change (or point to point percent change) in this series for the specified time period. For example, the command,

COMPUTE ABS % CHG:YS(1)(1969,1979)

will produce the calculation of the percent change in the value of YS (Kentucky Personal Income) from 1969 to 1979. This command differs from the %CHG command now documented in the DTP program (p. 4.5.9 of the Frankfort Supplement to the *KEIS User Manual*); the %CHG command computes a contiguous period to contiguous period percentage change in the value of the series.

KCEA News & Notes

(continued from page 2)

Dr. Renfro's forecasts for the performance of the Kentucky economy are based upon the national forecasts, but use the Kentucky Quarterly Econometric Model, which he has developed. One forecast indicates the likely performance of the Kentucky economy if the U.S. economy does not experience a recession. The other, based upon the Wharton national forecast, indicates the effect on Kentucky of two quarters of decline in real GNP. The latter Kentucky forecast is similar to the one presented in this issue of *Review and Perspective* (pp. 3-5), but takes account of the benchmarking revisions in the labor force and employment data made by the Kentucky Department for Human Resources, since that forecast was made on February 15, 1980.

Other articles in the 1980 KCEA Annual Report include, "Agriculture in Kentucky: Situation, Recent Trends, and Projected Development," by D. Milton Shuffett, "Coal in Kentucky: Situation, Recent Trends, and Projected Development," by Arthur F. Nicholson, "Regional Analysis of Kentucky," by Charles W. Hultman, "Lexington: An Economic Perspective," by L. Randolph McGee and Richard Thalheimer, and "Louisville: An Economic Perspective," by James R. McCabe.

Single copies of the 1980 KCEA Annual Report will be available from the KCEA office.

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The KCEA recently issued two new Policy Papers, "Indexing Kentucky's Individual Income Tax," by Drs. William J. Stober and Don M. Soule, and "Piggybacking: The Federal-State Collection Act of 1972," by Dr. Ray M. Ware. Both papers are concerned with reform of the state income tax. The Stober/Soule paper discusses indexing, the act of adjusting the

Two additional programs have been added to the KEIS Procedure on an experimental basis. These are programs OLSI (Ordinary Least Squares), an interactive regression program, and PVTBANK, a program to allow a user of the KEIS to create his private, or agency, databank. Such an agency bank may have data drawn from any of the public KEIS databanks or may have data which the user puts in, or a combination of these methods of databank creation. The Agency Bank is under the complete control of the creating agency. All Agency Banks can utilize all the software of the KEIS/Frankfort. Persons interested in further information or in instructions in the use of either OLSI or PVTBANK should contact Charles Renfro (606) 258-4626.

income tax of an individual taxpayer to compensate for inflation by changing the marginal tax rates or by some other method, as one means of reform. The Ware paper considers the practical implications of the Federal-State Collection Act of 1972.

Single copies of either of these papers are available, upon request, from the KCEA (451 Commerce Building, University of Kentucky, Lexington, Kentucky 40506).

* * *

The January 1980 issue of *Growth and Change*, a quarterly publication of the College of Business and Economics, University of Kentucky, contains several articles of probable interest to our readers. These include, among others, an analysis of changing employment opportunities by occupational group, and an article discussing the impacts of building moratoria on housing markets within a region. Subscriptions to *Growth and Change* may be obtained by writing to the Associate Editor, 644 Maxwellton Court, Lexington, Kentucky 40506.

* * *

TECHNICAL NOTE:

Readers of the Kentucky data in the tables of "Selected Indicators of Economic Activity" (page 7 of this issue) will note that the data reported there for fourth quarter, 1979, Tax Receipts, State Road Fund (state share) show an increase of 41.59 percent over the reported comparable data for the fourth quarter, 1978. In October 1979, \$32,642,816 in coal severance tax receipts were transferred from the General Fund into the State Road Fund, and these receipts are tallied as part of the fourth quarter 1979 State Road Fund Tax Receipts. In 1978, the comparable transfer of coal severance tax receipts (\$14,531,753) was made in September, and was tallied with the third quarter 1978 State Road Fund Tax Receipts.

The effect of the difference in the quarters in which this transfer was made is that the comparison of total tax receipts in the State Road Fund from fourth quarter 1978 to fourth quarter 1979 has been skewed upward. A comparison of the total 1978 and 1979 July through December data will show that there has been a decline of 11.9 percent in the Tax Receipts, State Road Fund (state share) for that six-month period, 1978 to 1979.

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KENTUCKY ECONOMY Review & Perspective

THE KENTUCKY COUNCIL OF ECONOMIC ADVISORS
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KCEA Review and Forecast

by Charles W. Hultman*

Most indicators suggest that the U.S. economy has experienced a decline in the level of economic activity; the major questions now are (a) How deep? and (b) How long? At the national level some observers anticipate a longer and deeper recession than was expected to be the case as recently as a month ago. Others still predict that the downturn will be relatively mild and that recovery will begin in early 1981. Nevertheless, some sectors, particularly housing, the automobile industry and various closely related industries, are being affected quite seriously.

The latest Wharton Econometric Forecasting Associates, Inc. forecast, dated April 27, 1980, assumes an increase in the rate of growth of defense expenditures, and a federal deficit of \$27.7 billion in FY 1980, \$33.6 billion in 1981. In addition, inflation is expected to be less serious throughout the year. The Wharton outlook for 1980 is for recession through the end of 1980, and a weak recovery in 1981. Unemployment, which amounted to about 5.8 percent in 1979 would increase to about 6.7 percent in 1980 and 7.4 percent in 1981.

What can be expected for the Commonwealth? The construction industry has already experienced major layoffs as reflected in various series showing contract construction and employment in contract construction (see p. 7). One encouraging sign in residential construction and related industries is the recent and sharp decline in mortgage rates. These rates, which generally ranged from 16 to as high as 20 percent across the state earlier this year, have declined to the 13 percent range in some areas. The durable goods industries in the state will also be adversely affected in both 1980 and 1981. Part of the decline will occur in the automobile and related industries, part in the sector providing goods for the construction industry, and part among firms producing other types of consumer durable goods.

The Kentucky Quarterly Econometric Model (pp. 3-5) suggests that real personal income could decrease slightly during 1980 and 1981. Total resident employment, which reached a record annual high of 1,476 thousand in 1979, will also decline somewhat in 1980 although, as noted, the major impact would be felt in a few sectors. Slight employment

declines are also expected in 1980 in the regulated industries, the government sector and finance, insurance and real estate. The Model also suggests that the recession may extend into 1981 although total employment would begin to pick up in 1981.

Evidence of a serious recession does not yet appear to be reflected in Kentucky's actual labor force employment rate which so far this year has ranged above the figures for comparable months last year. This may be because some workers have been "furloughed;" in other instances, reports of industry difficulties relate to planned rather than actual layoffs. Thus it can realistically be expected that the unemployment rate, on a monthly basis, will continue to exceed last year's throughout both 1980 and 1981.

The decline in the national composite index of twelve leading indicators and other recent evidence that nationally the recession may be sharp, is likely to promote federal action to stimulate the economy more than anticipated, given that 1980 is a major election year. A major problem of economic forecasting, of course, is that of predicting the actions to be taken by the federal government. Although such action may or may not lead to an appropriately higher level of consumer and investor spending at the most opportune time, it would undoubtedly serve to reduce the length of a recessionary period. Early recovery will depend upon several factors. Unfavorable signs or conditions include the high level of consumer debt and uncertainty in the field of energy. Favorable factors include low business inventories, a need for capital expenditures in some industries, the need for new housing for a growing population, and the availability of energy efficient cars from U.S. producers.

Inflation will continue to be a problem for Kentuckians as well as the rest of the nation; although the rate of the price increase has been expected to decline throughout the remainder of 1980 and during 1981, inflationary pressures may be more severe if expansionary policies are introduced at the federal level.

**Charles W. Hultman is the Associate Dean of the Office for Research, College of Business and Economics, University of Kentucky, and Chairman of the KCEA.*



Several enhancements have recently been made to the KEIS, on both the KECNET and state government version. Disaggregated county-level personal income data have been extended through 1978 and the years 1973-77 have been updated. These data revise the estimates published in the *Kentucky Personal Income Report* (November 1979). Comparable personal income data for the years 1965-70 will soon be added for the first time. Disaggregated quarterly state-level personal income data through the fourth quarter, 1979, will also be available soon.

Three new programs have been implemented. Two, entitled ADD2 and ADD3, are variations of the ADDITEM program and produce tables in which the absolute percentage change (point to point percentage change) has been calculated for any

series indicated by the user, for any period of time requested by him or her. The table produced by ADD2 organizes this output according to ADDs (as in ADDITEM), while the table produced by ADD3 organizes the data in alphabetical order, according to county. The third new program SASLINK, allows the use of the KEIS database with SAS, the Statistical Analysis System, and through SAS, offers an indirect link to the BMDP package. Users of the KEIS/Frankfort can access any of these programs by responding with the appropriate program name at the program choice point of the KEIS Procedure. Draft copies of a writeup for program SASLINK are available. For further information about any of these programs, contact Roy Sigafus, KCEA (606) 258-4626.

Orders are now being taken for the *Kentucky Council of Economic Advisors Annual Report 1980*. Single copies are available free of charge to persons in federal, state, and local government, and to persons affiliated with academic institutions or other nonprofit organizations. There will be a charge of \$10.00 for the *Annual Report* to all others, or for multiple copies. The *Annual Report* may be obtained by writing the KCEA office.

Dr. Charles G. Renfro, Executive Director of the KCEA, presented two papers on May 1-2, 1980 at the Eleventh Annual Pittsburg Conference on Modeling and Simulation, "The Kentucky Quarterly Econometric Model: Recent Developments," and "On the Observability and Controlability of a State Economy." The first of these provides a brief description of the current version of the Kentucky Quarterly Econometric Model and will be published by the Instrument Society of America in the conference proceedings. Copies of this paper are also available from the KCEA office. Dr. Renfro also recently addressed the annual dinner meeting of the Purchasing Managers Association of Central Kentucky on the topic "Prices and the Economic Outlook."

Margaret O. Adams, Manager, Kentucky Economic Information System (KEIS), talked about "An Information System for State and Local Government Planning and Analysis: The Example of the Kentucky Economic Information System," at the annual meeting of the International Association for Social Science Information Service and Technology, Washington, D.C., May 3, 1980. Part of this talk was based upon responses to a survey Ms. Adams conducted of all state government personnel who had been trained to use the KEIS/Frankfort. Copies of her paper are also available from the KCEA office.

The staff of the KEIS continues to hold training sessions in the use of the KEIS/Frankfort. The most recent of these have been at the offices of the Kentucky Department of Revenue, where the staff of that agency were trained to maintain and update the private agency banks created for them by the KEIS staff, as well as being trained to access and manipulate the public data banks of the KEIS/Frankfort. State agency personnel who wish to schedule a KEIS/Frankfort training session should contact Margaret O. Adams, KCEA (606) 258-4626.

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KENTUCKY ECONOMY: Review & Perspective

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This quarterly publication is intended, primarily, to provide forecasts and current information concerning the Kentucky economy. More generally it provides a forum for the publication of short, expository articles dealing with current research or information systems, the focus of which is some aspect of the Kentucky economy.

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Kentucky Econometric Model Forecast

by Charles G. Renfro*

This forecast for Kentucky is based upon the April 27, 1980 *Pre-Meeting Control Forecast* made by Wharton Econometric Forecasting Associates, using the Wharton Econometric Model of the United States. The Wharton forecast predicts a three quarter decline in real GNP beginning in the second quarter of 1980, followed by a weak recovery in 1981. They show a decline in real GNP of 1.2 percent from peak to trough during 1980, followed by an increase of 2.5 percent from the fourth quarter of 1980 to the fourth quarter of 1981. This results from their presumption of no tax cut in 1980 and continued fairly restrictive monetary policies. This national forecast is characterized by a progressively increasing unemployment rate, rising to a peak in the middle of 1981, a substantial decline of the Consumer Price Index during 1980, and a gradual decline in interest rates during the year from the peak in the second quarter of 1980.

The likely impact on Kentucky of this national scenario is shown in tables on this page and pages 4 and 5 to include a five quarter decline in Kentucky nonagricultural wage and salary employment, beginning in the second quarter of 1980. Only in the middle of 1981 is a recovery in this type of employment projected to begin. There is also a decline in Kentucky real Personal Income during this period, although current dollar Personal Income continues to increase.

The purpose of this forecast is simply to indicate the effect on Kentucky if the April 27 Wharton national forecast were to be realized. A more detailed assessment of the economic outlook for Kentucky and the United States is presented in the recently published 1980 *KCEA Annual Report*. However, in order to provide a convenient means of assessing the relative

ANNUAL SUMMARY TABLE
SELECTED ECONOMIC INDICATORS

Description	1979	1980	1981
Personal Income (Millions)	25907.5	28597.8	31117.9
% Chg.: Ky. Personal Income	12.13	10.38	8.81
Real Personal Income (Millions 1972 \$)	15858.2	15845.1	15831.2
% Chg.: Ky. Real Personal Income	2.95	-0.08	-0.09
Wage and Salary Disbursement	15812.0	17225.9	18700.8
Mfg. Wage & Salaries	4673.3	4967.2	5335.7
Non-Mfg. Wage & Salaries	11138.7	12258.8	13365.1
Non-Agri. Wage & Salary Employment (Thousands)	1240.0	1227.0	1215.3
% Chg.: Ky. Non-Agri. Employment	2.49	-1.05	-0.95
Manufacturing Employment	294.5	284.8	276.5
Durable Goods	169.4	156.0	145.2
Non-Durable Goods	125.1	128.8	131.2
Non-Mfg., Non-Agri. Employment	945.5	942.2	938.9
Civilian Labor Force (Thousands)	1584.7	1588.1	1594.7
Ky. Unemployment Rate (%)	5.7	6.2	6.4

impact of the projected recession on Kentucky, tables illustrating the difference between the *Annual Report* Kentucky Control Forecast and this new forecast are shown on page 12 of this issue of *Review & Perspective*.

It is important to note that, in the forecast tables, all the figures shown for 1979 are still *forecasts*, as explained in the 1980 *Annual Report* (p. 35).

*Charles G. Renfro is Executive Director of the Kentucky Council of Economic Advisors.

QUARTERLY FORECAST TABLE
SELECTED ECONOMIC INDICATORS

Description	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4
Personal Income (Millions)	27765.9	28210.6	28888.0	29526.8	29971.4	30561.8	31510.7	32427.7
% Chg.: Ky. Personal Income	11.41	6.56	9.95	9.14	6.16	8.11	13.01	12.16
Real Personal Income (Millions 1972 \$)	15957.4	15813.1	15811.7	15798.2	15700.1	15696.9	15882.4	16045.4
% Chg.: Ky. Real Personal Income	-0.85	-3.57	-0.04	-0.34	-2.46	-0.08	4.81	4.17
Wage and Salary Disbursement	16782.0	17062.3	17322.3	17737.2	18083.8	18398.6	18853.7	19467.0
Mfg. Wage & Salaries	4989.8	4940.2	4895.3	5043.5	5222.4	5301.6	5364.7	5454.1
Non-Mfg. Wage & Salaries	11792.2	12122.2	12427.0	12693.6	12861.5	13097.0	13489.0	14012.9
Non-Agri. Wage & Salary Employment (Thousands)	1238.5	1232.6	1223.1	1213.9	1211.9	1211.8	1216.0	1221.6
% Chg.: Ky. Non-Agri. Employment	0.40	-1.91	-3.04	-2.99	-0.64	-0.03	1.37	1.88
Manufacturing Employment	291.9	285.8	281.7	279.7	278.2	275.7	275.6	276.4
Durable Goods	163.9	158.0	152.4	149.6	147.7	144.9	144.4	144.1
Non-Durable Goods	128.0	127.8	129.3	130.2	130.6	130.8	131.3	132.3
Non-Mfg., Non-Agri. Employment	946.6	946.8	941.4	934.1	933.7	936.2	940.3	945.3
Civilian Labor Force (Thousands)	1594.5	1591.9	1585.9	1580.0	1582.8	1588.5	1598.3	1609.5
Ky. Unemployment Rate (%)	6.0	6.1	6.2	6.4	6.5	6.5	6.5	6.4

Forecast Date: May 25, 1980.

KENTUCKY QUARTERLY ECONOMETRIC MODEL

PERSONAL INCOME

DESCRIPTION	QUARTERLY								ANNUAL		
	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4	1979	1980	1981
PERSONAL INCOME (MILLIONS)	12765.9	28210.6	28888.0	29526.8	29921.4	30561.8	31510.7	32427.7	125907.5	28597.8	31117.9
WAGE & SALARY DISBURSEMENTS	16782.0	17062.3	17322.3	17737.2	18083.8	18398.6	18853.7	19467.0	15812.0	17225.9	18700.8
NON-AGRI. WAGES & SALARIES	16644.5	16924.1	17185.7	17601.3	17941.2	18249.0	18705.5	19319.3	15697.1	17088.9	18553.8
MANUFACTURING	4989.8	4940.2	4895.3	5043.5	5222.4	5301.6	5364.7	5454.1	4673.5	4967.2	5335.7
DURABLE GOODS	2811.5	2674.3	2601.3	2647.8	2790.9	2745.1	2760.7	2790.8	2712.3	2683.7	2771.9
NON-DURABLE GOODS	2178.3	2265.8	2294.0	2395.7	2431.5	2556.6	2604.0	2663.3	1961.0	2283.5	2563.8
MINING	1152.1	1268.0	1330.1	1383.0	1410.2	1442.4	1461.1	1491.7	1081.5	1278.3	1451.4
COAL MINING	1058.5	1189.7	1248.9	1298.9	1323.1	1353.0	1369.0	1396.5	1010.9	1199.0	1360.4
OTHER MINING	73.6	78.3	81.2	84.1	87.1	89.4	92.1	95.3	70.6	79.3	91.0
CONTRACT CONSTRUCTION	928.0	894.8	868.6	846.0	753.4	748.5	847.2	1078.7	977.9	884.4	857.0
REGULATED INDUSTRIES	1306.6	1328.2	1365.8	1397.7	1449.8	1450.3	1483.7	1520.3	1220.9	1349.6	1476.0
WHOLESALE & RETAIL TRADE	2668.1	2741.0	2809.2	2875.1	2965.1	3034.9	3120.5	3212.2	2471.7	2773.3	3083.2
SERVICES	2108.0	2211.2	2336.4	2419.1	2452.1	2540.6	2634.4	2718.9	1891.9	2268.7	2586.5
FINANCE, INS. & REAL ESTATE	606.0	603.3	617.2	636.6	672.2	678.2	700.7	709.7	553.2	615.8	690.7
GOVERNMENT	2905.9	2937.4	2963.1	3000.3	3016.1	3052.5	3093.2	3133.7	2826.6	2951.7	3073.9
CIVILIAN GOVERNMENT	2370.9	2415.4	2437.1	2469.3	2472.1	2491.5	2511.2	2546.7	2323.9	2427.9	2505.4
FEDERAL CIVILIAN	652.4	658.7	663.9	681.5	675.0	681.6	685.4	703.7	627.3	664.1	686.4
STATE & LOC. GOV'T	1738.5	1756.7	1773.2	1786.8	1797.1	1809.9	1825.8	1843.0	1696.6	1763.8	1819.0
FEDERAL MILITARY	515.0	522.0	526.0	532.0	544.0	561.0	582.0	582.0	502.8	523.8	568.5
AGRICULTURAL WAGE & SALARY	137.5	138.2	136.6	135.9	142.7	149.5	148.2	147.2	115.0	137.1	142.0
OTHER LABOR INCOME	2055.1	2118.7	2181.2	2268.7	2350.2	2424.3	2523.4	2652.3	1860.6	2155.9	2487.6
PROPRIETORS NET INCOME	2719.9	2700.3	2692.9	2725.1	2815.7	2911.0	2953.0	3022.4	2617.3	2709.6	2925.5
NON-FARM	2068.4	2074.2	2101.3	2165.5	2229.8	2301.5	2377.7	2461.3	1939.3	2101.8	2342.6
FARM	653.5	626.1	591.6	559.6	585.9	609.4	575.2	561.1	677.9	607.7	582.9
RESIDENCE ADJUSTMENT	290.6	293.9	295.4	306.5	319.1	327.0	330.9	335.5	269.7	296.6	328.1
OTHER INCOME ITEMS	7138.8	7269.5	7644.4	7757.6	7846.0	7969.6	8348.7	8485.5	6479.5	7452.6	8162.4
PROPERTY INCOME	2994.3	3029.4	3062.3	3071.4	3080.2	3107.8	3157.3	3212.9	2681.8	3039.4	3139.6
TRANSFER PAYMENTS	4144.5	4240.2	4582.1	4686.2	4765.8	4861.8	5191.4	5272.6	3797.7	4413.2	5022.9
LESS: PERSONAL CONTRIBUTIONS FOR SOCIAL INSURANCE	1220.4	1234.1	1248.4	1268.3	1443.4	1468.6	1498.9	1535.0	1131.6	1242.8	1486.5

FORECAST DATE: MAY 25, 1980

KENTUCKY QUARTERLY ECONOMETRIC MODEL

EMPLOYMENT AND HOURS

DESCRIPTION	QUARTERLY								ANNUAL		
	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4	1979	1980	1981
EMPLOYMENT (THOUSANDS)											
TOTAL EMPLOYMENT	1481.7	1477.5	1469.8	1462.3	1463.5	1468.5	1478.1	1489.7	1477.8	1472.8	1474.9
NON-AGRI. EMPLOYMENT	1390.0	1385.6	1378.0	1371.1	1371.7	1375.5	1385.0	1396.5	1390.4	1381.2	1382.2
WAGE & SALARY EMPLOYMENT	1238.5	1232.6	1223.1	1213.9	1211.9	1211.8	1216.0	1221.6	1240.0	1227.0	1215.3
MANUFACTURING	291.9	285.8	281.7	279.7	278.2	275.7	275.6	276.4	294.5	284.8	276.5
DURABLE GOODS	163.9	158.0	152.4	149.6	147.7	144.9	144.4	144.1	169.4	156.0	145.2
NON-DURABLE GOODS	128.0	127.8	129.3	130.2	130.6	130.8	131.3	132.3	125.1	128.8	131.2
MINING	54.4	55.5	56.7	58.2	58.4	58.8	58.6	58.8	54.8	56.2	58.6
COAL MINING	49.1	50.3	51.5	52.9	53.0	53.3	53.1	53.2	49.5	50.9	53.1
OTHER	5.3	5.2	5.2	5.3	5.4	5.4	5.5	5.6	5.2	5.2	5.5
CONTRACT CONSTRUCTION	65.4	63.0	58.2	50.6	50.5	51.8	53.8	54.9	70.2	59.3	52.8
REGULATED INDUSTRIES	69.4	70.0	69.3	67.8	66.5	67.0	67.4	67.8	70.3	69.1	67.2
WHOLESALE & RETAIL TRADE	221.2	221.5	222.2	222.7	224.1	225.5	227.2	229.2	269.4	271.9	276.5
SERVICES	211.5	214.9	215.7	215.8	216.4	216.7	217.9	220.0	203.5	214.5	217.8
FINANCE, INSURANCE & REAL ESTATE	49.6	47.4	45.9	46.6	47.9	48.0	47.8	48.0	49.5	47.4	47.9
GOVERNMENT	225.1	224.4	223.5	222.3	219.8	218.5	217.5	216.6	227.8	223.8	218.1
FEDERAL	39.0	39.0	39.0	39.0	38.0	38.0	38.0	38.0	39.0	39.0	38.0
STATE & LOCAL	186.1	185.4	184.5	183.3	181.8	180.5	179.5	178.6	188.8	184.8	180.1
EDUCATION	106.3	106.1	105.8	105.2	104.8	104.3	104.1	104.0	105.3	105.8	104.3
OTHER	79.8	79.3	78.7	78.1	77.0	76.2	75.4	74.6	83.5	79.0	75.8
ALL OTHER NON-AG EMPL	151.5	153.1	154.9	157.2	159.8	163.6	169.0	174.9	150.4	154.2	166.8
AGRICULTURAL	74.6	74.8	74.7	74.2	74.8	76.0	76.1	76.1	70.4	74.6	75.8
HIRED WORKERS	24.5	24.3	23.9	22.9	23.0	23.5	23.0	22.6	21.0	23.9	23.1
FAMILY & OTHER UNPAID	50.2	50.6	50.9	51.4	51.8	52.5	53.1	53.5	49.3	50.7	52.7
HOURS & MANHOURS											
AVERAGE WEEKLY HOURS											
DURABLE MANUFACTURING	40.3	39.5	38.5	38.9	40.0	40.2	39.5	39.1	40.1	39.3	39.7
NON-DURABLE MANUFACTURING	40.2	40.6	39.7	39.8	40.0	40.0	40.0	40.0	39.5	40.1	40.0
MANHOURS											
TOTAL MANUFACTURING	6110.1	5941.2	5720.3	5716.5	5784.0	5751.6	5695.2	5680.5	6102.9	5872.0	5727.8
DURABLE GOODS	3434.2	3243.0	3051.2	3022.3	3067.8	3031.2	2964.4	2928.5	3535.0	3187.7	2998.0
NON-DURABLE GOODS	2675.8	2698.3	2669.1	2694.2	2716.2	2720.4	2730.8	2751.9	2567.8	2684.3	2729.8
DAYS & MAN-DAYS											
COAL MINING DAYS WORKED	47.0	50.8	51.2	51.0	51.0	51.0	51.0	51.0	47.0	50.0	51.0
COAL MINING MAN DAYS	9245.3	10219.7	10550.8	10792.2	10811.0	10873.1	10819.7	10854.5	9323.1	10202.0	10839.6
LABOR FORCE											
RESIDENT ADJUSTED LABOR FORCE	1594.5	1591.9	1585.9	1580.0	1582.8	1588.5	1598.3	1609.5	1584.7	1588.1	1594.7
LABOR FORCE (NOT RES. ADJ.)	1577.5	1574.9	1568.9	1563.0	1565.8	1571.5	1581.3	1592.5	1567.7	1571.1	1577.7
UNEMPLOYMENT	95.8	97.4	99.1	100.7	102.2	103.0	103.2	102.8	89.9	98.3	102.8
UNEMPLOYMENT RATE (%)	6.0	6.1	6.2	6.4	6.5	6.5	6.5	6.4	5.7	6.2	6.4

FORECAST DATE: MAY 25, 1980

selected indicators OF ECONOMIC

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

Jan. 1980	Feb. 1980	Mar. 1980	Qtr. I 1980	% Chg. 79-IV 80-I	% Chg. 79-I 80-I
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UNITED STATES DATA

CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)					
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	233.20	236.40	239.80	236.47	3.90 14.25
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	237.50	238.60	241.00	239.03	2.34 7.82
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	247.30	250.50	254.50	250.77	4.18 16.40
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	171.00	171.90	176.00	172.97	0.78 6.68
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	233.50	239.60	243.70	238.93	6.15 21.99
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	253.90	257.90	260.20	257.33	3.68 10.73
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	195.30	197.80	200.60	197.90	2.68 7.89
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	206.30	208.10	208.90	207.77	2.31 8.36
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	327.90	344.60	355.00	342.50	10.60 45.19
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)					
PRODUCER PRICE INDEX, ALL FINISHED GOODS	232.10	235.40	238.20	235.23	4.04 13.42
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	233.20	237.30	240.60	237.03	4.48 15.08
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	265.60	271.10	273.20	269.97	5.22 18.11
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	255.20	259.20	259.00	257.80	4.90 16.35
PRODUCER PRICE INDEX, CRUDE MATERIALS	296.90	308.30	303.30	302.83	3.59 12.55
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	243.00	252.60	245.90	247.17	-0.28 2.40
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT (1967=100)	390.90	390.90	390.90	390.90	-0.82 -1.00
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT (JUNE 76=100)	129.80	130.00	130.80	130.20	1.03 4.55
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)					
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	15.79	15.92	16.33	16.01	2.88 18.85
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	34.93	35.23	36.23	35.46	2.71 21.57
AVG PRICE FOR ELECTRICITY, PER 500 KWH	26.70	27.70	28.15	27.52	4.99 15.40
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	0.93	0.98	1.01	0.97	11.74 67.65
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.11	1.19	1.23	1.18	14.97 65.15
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.09	1.16	1.20	1.15	15.13 67.74
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.13	1.21	1.25	1.20	14.55 63.11
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.15	1.23	1.28	1.22	14.99 61.83
LABOR FORCE (SEASONALLY ADJUSTED)					
LABOR FORCE, CIVILIAN (MILLIONS)	104.23	104.26	104.09	104.19	0.43 1.84
EMPLOYMENT, TOTAL (MILLIONS)	97.80	97.95	97.66	97.80	0.14 1.43
EMPLOYMENT, AGRICULTURE	3.27	3.33	3.36	3.32	-0.84 0.68
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	94.53	94.63	94.30	94.49	0.18 1.46
UNEMPLOYMENT RATE, TOTAL	6.20	6.00	6.20	6.13	4.55 6.98
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	11.80	11.50	11.80	11.70	4.15 2.03
OTHER SELECTED NATIONAL INDICATORS:					
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (BILLIONS OF \$)	2046.50	2053.80	2069.40	2057.20	2.60 11.04
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	135.90	135.40	132.60	134.61	-1.51 -5.65
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	152.70	152.40	151.20	152.10	-0.04 -0.04
INTEREST RATE, YIELD ON 3-MONTH TREASURY BILLS	12.04	12.81	15.53	13.44	14.04 43.80
PRIVATE RESIDENTIAL BLDG. 16000 PERMIT ISSUING PLACES (SADJ THOU)	1264.00	1142.00	932.00	3338.00	-16.74 -25.77
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (BILLIONS OF	308.98	308.19	307.96	308.38	2.31 12.35

KENTUCKY DATA

	Jan. 1980	Feb. 1980	Mar. 1980	Qtr. I 1980	% Chg. 79-IV 80-I	% Chg. 79-I 80-I
LABOR FORCE (NOT SEASONALLY ADJUSTED)						
LABOR FORCE, TOTAL CIVILIAN	1609.30	1588.80	1582.00	1593.63	0.93	3.01
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE (THOUSANDS)	1489.80	1465.30	1479.70	1478.27	-1.10	3.66
EMPLOYMENT, AGRICULTURAL	47.70	50.50	55.60	51.27	-11.19	-0.65
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1442.10	1414.80	1424.10	1427.00	0.48	3.82
UNEMPLOYMENT RATE (NOT SEASONALLY ADJUSTED)	7.40	7.80	6.50	7.24	35.70	8.93
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY (THOUSANDS)	1229.80	1214.30	1223.30	1222.47	-3.11	0.71
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	48.80	48.90	48.50	48.73	-3.41	1.39
EMPLOYMENT, CONTRACT CONSTRUCTION	60.30	55.10	58.40	57.93	-19.65	-0.00
EMPLOYMENT, TOTAL MANUFACTURING	288.90	283.80	286.30	286.32	-2.25	-3.54
EMPLOYMENT, MANUFACTURING, DURABLE	161.70	157.80	161.00	160.43	-3.78	-6.45
EMPLOYMENT, MANUFACTURING, NON-DURABLE	127.20	126.00	124.50	125.90	-0.24	0.45
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	69.30	68.80	69.00	69.03	-1.99	0.88
EMPLOYMENT, WHOLESALE & RETAIL TRADE	270.20	263.60	262.90	265.57	-3.56	1.26
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	50.40	50.80	50.20	50.47	-0.66	2.16
EMPLOYMENT, SERVICES (SIC 70-80)	205.20	205.00	207.40	205.87	-1.44	4.52
EMPLOYMENT, CIVILIAN GOVERNMENT	231.60	233.50	235.60	233.57	-0.75	1.89
EMPLOYMENT, STATE & LOCAL GOVERNMENT	192.50	194.50	195.20	194.07	0.05	3.36
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	39.10	38.80	38.80	38.90	-2.51	-1.35
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	39.70	39.60	39.20	39.50	-2.47	-2.71
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.30	37.70	38.40	38.13	-2.56	-0.62
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	6.98	6.97	7.11	7.02	1.20	7.01
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	7.45	7.41	7.62	7.49	1.72	8.86
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	6.33	6.37	6.42	6.37	-0.05	4.60
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	272.92	270.44	275.87	273.08	-1.34	5.56
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	295.77	293.44	298.70	295.97	-0.80	5.91
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	242.44	240.15	246.53	243.04	-2.60	5.24
INDEX OF PRICES RECEIVED BY KY FARMERS (1972=100)						
INDEX OF PRICES REC'D BY KY FARMERS, CROP AND LIVESTOCK PRODUCTS	171.75	171.10	162.24	168.36	-0.55	3.73
INDEX OF PRICES REC'D BY KY FARMERS, LIVESTOCK PRODUCTS	174.52	182.10	173.14	176.59	2.13	-3.28
INDEX OF PRICES REC'D BY KY FARMERS, CROPS	169.99	164.16	155.37	163.17	-2.28	9.09
MINING (MILLIONS OF TONS, THOUSANDS OF TAX DOLLARS)						
PHYSICAL OUTPUT OF COAL, EASTERN KENTUCKY - NOT SEAS ADJUSTED	7.03	7.20	10.36	24.59	-8.87	17.24
PHYSICAL OUTPUT OF COAL, WESTERN KENTUCKY - NOT SEAS ADJUSTED	3.01	3.14	4.25	10.41	-11.08	-3.52
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	10.74	10.97	11.49	11.07	3.14	11.00
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	428.53	448.67	483.73	453.64	3.90	0.92
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	39.90	40.90	42.10	40.97	0.66	-9.10
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	21380.71	12955.59	13289.61	47625.91	*	7.40
CONSTRUCTION (MILLIONS OF \$, NO. OF PRIVATE RESID. UNITS--NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	90.40	180.40	283.60	554.40	44.40	14.44
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	397.00	245.00	359.00	1001.00	-34.23	-37.12
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	15.18	10.26	14.94	40.38	-34.47	-30.95
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	554.00	458.00	660.00	1672.00	-41.19	-28.15
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL UNITS, TOTAL	20.32	13.98	22.77	57.08	-32.51	-21.66
ELECTRIC POWER SALES (MIL KWH)						
ELECTRICITY SALES, KWH, TO INDUSTRIAL & COMMERCIAL CUST. INC. DOE	2970.80	2925.65	NA	NA	NA	NA
ELECTRICITY SALES, KWH, TO INDUSTRIAL & COMMERCIAL CUST. EX.DOE	2174.94	2180.72	NA	NA	NA	NA
ELECTRICITY SALES, KWH, TO DEPARTMENT OF ENERGY	795.86	744.92	NA	NA	NA	NA
RETAIL SALES (000\$, 000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	76468.63	43542.67	63343.25	183354.44	*	-8.45
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	3.76	5.20	3.12	12.09	-64.32	-27.42
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	19.35	18.83	29.62	67.80	-52.60	-30.61
SALES OF ORDINARY LIFE INSURANCE	313.00	338.59	402.31	1053.91	-10.23	10.12
SELECTED STATE GOVERNMENT RECEIPTS						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL (MIL \$)	215.54	138.07	141.49	495.10	*	3.10
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL (THOU \$)	73418.06	40776.48	46440.17	160634.63	*	-9.31
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL (THOU \$)	28566.69	58655.79	40837.49	128059.88	*	10.34
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION (THOU \$)	9541.23	3652.60	9863.55	23057.39	*	-11.60
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE (THOU \$)	34181.05	26921.50	34742.25	95844.75	*	3.60
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS NORMAL, TOTAL (THOU \$)	23700.39	14318.71	14461.22	52480.32	*	3.40
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX (THOU \$)	8183.98	6802.59	7625.05	22611.63	*	-8.07

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:
 F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY);
 VALUE OF CONSTRUCTION CONTRACTS;
 EDISON ELECTRIC INSTITUTE, ELECTRIC POWER SALES;
 LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION;
 SALES OF ORDINARY LIFE INSURANCE;
 R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

NA = NOT AVAILABLE AT PUBLICATION TIME;
 * = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

Air Quality Improvement Programs in Kentucky

by Rose Marie Carr*

In recent months, the Inspection and Maintenance Program to reduce auto emissions in Jefferson County and Northern Kentucky (Boone, Campbell, and Kenton Counties) has been the subject of substantial debate and publicity. Interspersed with this debate have been statements concerning the economic impact of the air pollution regulations and of the sanctions that the United States Environmental Protection Agency (EPA) will impose if an Inspection and Maintenance Program is not established in these two areas of Kentucky.

This article will discuss the different aspects of the federal and state air quality improvement programs that have made the adoption of an Inspection and Maintenance Program in these two areas of Kentucky crucial. The most recent information will be provided concerning the economic sanctions that will be imposed by EPA if inspection and maintenance programs are not established, and the implications of these sanctions will be discussed.

The history of national air quality improvement programs spans approximately a twenty-five year period. In 1955 Congress enacted Public Law 84-159 creating the first formal federal air pollution control program within the Public Health Service. It authorized the agency to conduct research and training programs and to provide technical assistance to address health problems associated with air pollution. The Clean Air Act of 1963 broadened federal authority to include enforcement power in interstate problems and to provide financial assistance to state, local, and regional governments.

After successive amendments to the Clean Air Act throughout the 1960s, the federal government developed a new approach to air resource management. A systems approach was adopted which attempts to achieve maximum utilization of the atmosphere, without causing adverse effects on the environment. It begins with a determination of existing regional conditions—air quality, meteorological patterns, and an inventory of emissions. Next, goals for the air resource management program, or air quality standards, are developed. Air quality standards define the levels of pollutant concentration at which the health of the population will be protected with a margin of safety. Finally, a control strategy is designed for the achievement of the air quality standards. Ordinarily the mechanism employed in the control strategy is the application of emission standards to limit the poundage production of air pollutants from sources such as steel mills, automobiles, or burning trash.¹

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Using these concepts of air resource management, the federal government designated air quality control regions throughout the country. Amendments to the Clean Air Act in 1970 mandated the establishment of national air quality standards, national emission standards for new sources of hazardous pollutants, and required states to develop statewide implementation plans to achieve the air quality standards in each control region. After the state air quality standards receive federal approval, the state adopts an implementation plan to achieve the goals defined by the standards.

The ambient air quality standards defined by EPA address the sources of air pollution and establish acceptable levels for six principal types of pollutants: particulate matter, sulfur dioxide, nitrogen dioxide, ozone, hydrocarbons and carbon monoxide. Two categories of air quality standards have been established. The primary category defines the level of pollution which, if exceeded, results in physical harm to human health; the secondary category establishes the maximum level of pollution possible if damage to plants, animals, and property is to be prevented.²

The Clean Air Act was further amended in 1977 because several air quality control regions had not attained the air quality standards by the deadline set in the 1970 legislation. The 1977 amendments require the identification of all non-attainment areas and require that each state revise its implementation plan with new strategies to attain the primary ambient air quality standards by December 31, 1982.

A chronology of air quality improvement programs in Kentucky shows that the initiative of the Kentucky General Assembly actually preceded that of the U.S. Congress. In 1952, KRS 77 recognized air pollution as a regional problem and authorized air pollution control districts to be activated in any county or group of counties. Under this legislation, the Air Pollution Control Board of Jefferson County was formed.

Following new legislation in 1966, a state Air Pollution Control Commission was created with broad authority to develop and conduct a comprehensive program to abate, prevent, and control air pollution. The first initiative of the Air Pollution Control Commission came in 1967 and required registration of air contaminant sources. During the next three years additional programs were developed which resulted in the adoption of statewide air quality standards.

In 1971, as a result of the 1970 amendments to the Clean Air Act, the EPA designated nine air quality control regions in Kentucky, encompassing all the counties. Shortly thereafter, the Commonwealth adopted and submitted its implementation plan to the EPA in accordance with the federal legislation. The Kentucky Implementation Plan was approved by EPA on May 31, 1972.

The Kentucky Department for Natural Resources and Environmental Protection replaced the Kentucky Air Pollution Control Commission in 1973. The department adopted the

national ambient air quality standards. The Implementation Plan was revised in 1975 after a reexamination of the sulfur dioxide control strategy to comply with EPA's Clean Fuel Policy.

On March 3, 1978 the EPA designated a number of areas in Kentucky as not having attained the primary air quality standards. These areas had already been identified by the Kentucky Department for Natural Resources and Environmental Protection. They are listed in the table.

AIR QUALITY NONATTAINMENT AREAS IN THE COMMONWEALTH OF KENTUCKY, 1977

Area	Pollutant
Bell County	Particulate Matter
Boone County	Oxidants
Boyd County	Particulate Matter, Sulfur Dioxide, Oxidants
Campbell County	Oxidants
Corbin, City of	Particulate Matter
Daviess County	Oxidants
Fayette County	Oxidants
Greenup County	Sulfur Dioxide
Hazard, City of	Particulate Matter
Henderson, City of	Particulate Matter, Sulfur Dioxide
Henderson County	Oxidants
Jefferson County	Particulate Matter, Sulfur Dioxide, Oxidants and Carbon Monoxide
Kenton County	Oxidants
Louisa, City of	Particulate Matter
McCracken County	Particulate Matter, Sulfur Dioxide, Oxidants
Marshall County	Particulate Matter
Muhlenburg County	Particulate Matter, Sulfur Dioxide
Newport, City of	Particulate Matter
Owensboro, City of	Particulate Matter, Sulfur Dioxide
Pikeville, City of	Particulate Matter
Richmond, City of	Particulate Matter
Shepherdsville, City of	Particulate Matter
Webster County	Sulfur Dioxide

SOURCE: Department for Natural Resources and Environmental Protection, 1977.

In response, the Commonwealth prepared an Implementation Plan which provides for achieving the ambient air quality standards in all the nonattainment locations with the exception of two urban areas—Jefferson County and Northern Kentucky (Boone, Campbell, and Kenton Counties)—by no later than December 31, 1982. An extension is necessary if these areas are to attain the standard for ozone and carbon monoxide.

EPA has made an extension of the 1982 deadline contingent upon the Commonwealth's commitment to implement a mandatory Inspection and Maintenance Program in those areas. As this article goes to press, the authority for this has not been obtained. Failure to obtain legal authority for a mandatory Inspection and Maintenance Program by July 1, 1980 will constitute failure to submit an essential element of the state Implementation Plan. It will also indicate to the EPA that sufficient progress is not being made by Kentucky to attain the ambient air quality standards deemed necessary to safeguard the health and welfare of the population in the two nonattainment areas.

The U.S. Congress has specified three types of sanctions that could be imposed upon a state if it does not have an approved air quality Implementation Plan by July 1, 1980. These are:

1. Prohibition of the construction and expansion of major sources of air pollution;
2. Withholding federal highway construction funds;
3. Withholding EPA construction grants for sewage treatment facilities.³

The first sanction prohibits the issuing of permits for major construction of facilities which are a potential source of air pollution, or, for modifications to existing facilities that are air pollution sources, in the nonattainment areas. For the local economy, this means there will be no major new development in these areas until an Inspection and Maintenance Program is implemented.

The second sanction directs that the U.S. Secretary of Transportation not approve any projects or award any grants under Title 23 other than for safety, mass transit, or transportation improvement projects related to air quality improvements or maintenance. Recent figures from EPA covering the funding period from July 1, 1980 through June 30, 1982, indicate that if sanctions are imposed on Kentucky, \$166,177,538 in state and federal highway funds will be affected. Forty-five highway projects, twenty-one in Jefferson County and twenty-four in Northern Kentucky may be delayed.⁴

The third sanction authorizes EPA to withhold construction grants for sewage treatment plants. If this sanction is imposed on Kentucky, EPA has indicated that \$17,155,850 in federal funds will be withheld in these areas. In Jefferson County a recycle sidestream reduction project with \$7,685,850 in federal money may be halted. Federal funds of \$1,500,000 for a sewer system rehabilitation project in the Campbell-Kenton County Sanitation District #1 may be withheld. A federal grant of \$7,970,000 to construct a new treatment plant and interceptor sewers for the City of Florence may be stopped. Total affected sewer treatment federal funds for Northern Kentucky are \$9,470,000.

The impact on the economy of the latter two sanctions is more clearly defined than that of the first sanction. Construction employment that would have been available through these funds will be delayed. Improved transportation routes and sewage treatment services will not be available as early as anticipated. Any regional economic activity that would have resulted from the multiplier effect of these funds will be postponed.

A number of control measures are already in effect in the two nonattainment areas. Polluting industries are making the necessary changes to reduce their emissions. Public transportation systems are being improved. Auto manufacturers have been required to meet stringent new car emission standards to guarantee that new automobiles will emit lower pollutant levels.

The largest single contributor to continuing air pollution in these two regions is the automobile and thus, an additional

(continued on page 11)

The Outlook for Kentucky Tax Revenues

by Lawrence K. Lynch*

A major concern during the 1980 session of the Kentucky General Assembly was whether tax revenues would be sufficient to fund existing programs and carry out the Governor's proposed economic development strategy. Of particular concern was the Transportation Fund, for which the major source of revenue is the gasoline tax. Gasoline tax revenues have been declining as consumers have reduced their use of gasoline in response to sharply higher prices.

In order to partially remedy this problem, the General Assembly enacted legislation to convert the gasoline tax from a specific 9 cents per gallon to an *ad valorem* 9 percent of the wholesale price. While a few other changes in tax laws were enacted, the gasoline tax change was the major modification in taxation enacted by the 1980 General Assembly.

Despite the changes in the gasoline tax, however, the outlook for Transportation Fund revenues during the next biennium is bleak. The General Fund, on the other hand, will fare reasonably well. These observations are based upon a set of revised revenue estimates generated by the author for the Kentucky Legislative Research Commission. The revenue estimates are based upon a statistical model described in the note at the end of this article.

The model was directly applied to KCEA projections of personal income of 13.34 percent in 1979, 10 percent in 1980, and 11.34 percent in 1981 for the sales and use tax, the individual income tax, the coal severance tax and other General Fund revenues. Because the author assumes some recessionary impact in 1980, the model was not consistently used for the corporation income tax nor the motor vehicle usage tax. Corporation income tax receipts were assumed to remain flat in the current fiscal year, and to grow by only 5 percent in fiscal 1980-81. For 1981-82, the model was used. Motor vehicle usage tax receipts were estimated to decline by 10.8 percent in fiscal 1979-80—consistent with actual receipts for the first three quarters—and then to grow as the model predicts.

Motor fuels tax receipts growth depends more upon the price elasticity of demand for gasoline, now that the tax has become *ad valorem*. During the 1973-74 to 1978-79 period, the quantity of gasoline purchased grew very slowly as the positive effect of population and income growth offset the negative effect of rising prices. The sharp price increases in the spring of 1979, however, resulted in a decline in gasoline purchases, and an expected decline in tax revenue for fiscal 1979-80. For this revenue estimate, it was assumed that the price elasticity of demand for motor fuels is equal to unity,

that is, gallons purchased decline by the same percentage that prices rise. However, population and income growth are expected to exert a positive effect on gallons purchased. The net result of both factors—declining purchases due to price increases and increasing purchases due to population and income growth—is expected to be positive growth of about 5 percent per year in gasoline tax revenues.

Other Transportation Fund revenues, chiefly license tax receipts of various kinds, are projected to follow their historic pattern of about 5 percent growth per year. Finally, the amounts of coal severance tax receipts to be transferred from the General Fund to the Transportation Fund for debt service on certain highway bond issues were determined by the Kentucky Department of Finance.

The revenue estimates for the current and the next two fiscal years, along with comparable 1978-79 data, are shown in the table on the following page. The General Fund is expected to grow slowly in 1979-80, due to the exemption of residential utility bills from the sales and use tax, and to no growth in corporation income tax receipts. In fiscal 1980-81 and 1981-82, the growth of General Fund receipts will accelerate and exceed the rate of growth of Kentucky Personal Income. Individual income tax receipts are expected to be the fastest growing component of the General Fund over the three-year period, followed by coal revenue tax receipts, and sales and use tax revenues (in fiscal years 1980-81 and 1981-82). By the second year of the next biennium, corporate income tax receipts are expected to resume strong growth, too.

The Transportation Fund is expected to remain nearly flat in 1979-80, due to declining receipts from motor fuels and motor vehicle usage taxes. Even with the change in the motor fuels tax to an *ad valorem* basis, the Transportation Fund will grow very slowly in the next biennium. The only Transportation Fund tax that responds well to income growth is the motor vehicle usage tax, which, after a sharp decline due to poor automobile sales in fiscal 1979-80, is expected to grow by 13.6 percent in fiscal 1980-81 and 15.4 percent in fiscal 1981-82. Receipts for other Transportation Fund taxes are expected to grow very slowly in the next biennium. It seems that the 1982 session of the Kentucky General Assembly will again be faced with the need to increase Transportation Fund tax bases or tax rates, or to enact new taxes.

Technical Note

The methodology employed to estimate receipts for most major Kentucky state taxes involved the statistical estimation of the historical relationships between tax revenues and personal income, and then utilized KCEA projections of personal income. Gasoline taxes, and various business and other taxes in the Transportation Fund, do not respond to changes in personal income, and were estimated by less rigorous techniques.

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GENERAL FUND AND TRANSPORTATION FUND TAX RECEIPTS
ACTUAL, FISCAL YEAR 1978-79
ESTIMATED, FISCAL YEARS 1979-80, 1980-81 AND 1981-82
(Millions of Dollars)

	Actual 1978-79	Estimated 1979-80	Percent Change	Estimated 1980-81	Percent Change	Estimated 1981-82	Percent Change
Sales and Use	599.2	603.8	0.8	658.9	9.1	727.1	10.3
Individual Income	456.3	551.5	20.9	637.8	15.6	751.0	17.7
Corporation Income	163.4	163.4	0.0	171.6	5.0	198.1	15.4
Coal Severance	156.3	180.1	15.2	200.6	11.4	226.5	12.9
Less Transfer	(14.5)	(32.6)	-	(43.8)*	-	(43.8)*	-
Other General Fund	340.5	372.9	9.5	399.5	7.1	431.9	8.1
Total General Fund	1,698.5	1,839.1	8.3	2,024.6	10.1	2,290.8	13.1
Motor Fuels	190.7	184.5	-3.2	193.7	5.0	203.4	5.0
Motor Vehicle Usage	111.5	99.4	-10.8	112.9	13.6	130.3	15.4
Coal Severance Transfer	14.5	32.6	-	43.8	-	43.8	-
Other Transportation Fund	55.7	58.5	5.0	61.4	5.0	64.5	5.0
Total Transportation Fund	372.4	375.0	0.7	411.8	9.8	442.0	7.3

*This estimate is based upon existing bond issues only, and reflects a reduction for earned interest.

The equation used to estimate revenues from the sales and use tax, the individual income tax, the corporation income tax, the coal severance tax, other General Fund revenues, and the motor vehicle usage tax was of this form:

$$T = aY^b$$

where, T = tax revenues, Y = Total Kentucky Personal Income, and a, b = constants estimated by the model. This form of model is described in Robert E. Berney and Bernard H. Frerichs, "Income Elasticities for State Revenues: Techniques of Estimation and Their Usefulness for Forecasting," *Public Finance Quarterly*, October 1973, pp. 409-425. It has the interesting property that the exponent, b, is the "income elasticity" of a particular tax—that is, b is the percent change in revenue for a one percent change in personal income.

The Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce was the source of personal income data for the period 1960-78. The Kentucky Department of Revenue was the source of tax receipts data for fiscal years 1960-61 through 1978-79. (These personal income and tax data are accessible in the Kentucky Economic Information System, KEIS). After experimenting with several lagged rela-

tionships, it was found that personal income for the calendar year ending in the middle of a fiscal year was the best predictor of tax revenue for the fiscal year.

The constants in each equation, i.e., the elasticity coefficients, were estimated by linear regressions on the logarithms of personal income and tax revenues. The r^2 s measure the percentage of total variation in tax revenues "explained" by personal income. When r^2 values are close to unity, the equation is said to provide a very good "fit" to the data, and may be considered an accurate estimator.

INCOME ELASTICITIES OF MAJOR KENTUCKY TAXES

Tax Source	Elasticity Coefficient	r^2
Sales and Use	.9122	.9911
Individual Income	1.5646	.9890
Corporate Income	1.3640	.9606
Coal Severance	1.1401	.8671
Other General Fund Revenues	.7144	.9922
Motor Vehicle Usage	1.3585	.9837

(continued from page 9)

step toward the reduction of the pollutants is the Inspection and Maintenance Program. A vehicle emission inspection and maintenance program reduces air pollution levels by requiring periodic testing of in-use-vehicle emissions and related maintenance for those vehicles which fail to meet prescribed inspection standards.

Debate continues on the question of how to resolve the dilemma surrounding inspection and maintenance programs in Jefferson County and in Northern Kentucky. Local officials in Northern Kentucky have raised questions concerning the method used to determine the nonattainment status in their area and may ask EPA to reevaluate the need for an Inspection and Maintenance Program. Jefferson County has proposed an ordinance to enforce an Inspection and Maintenance Program. Under this proposal, the inspection centers would be operated by the Kentucky Department for Natural Resources and Environmental Protection.

At this time, the final outcome is uncertain. Negotiations among EPA, the Kentucky Department for Natural Resources and Environmental Protection, and the affected local governments will continue until this problem is resolved and an acceptable program for achieving primary air quality standards is adopted.

Notes

¹ Kentucky Department for Natural Resources and Environmental Protection, Division of Air Pollution Control, *Revisions to the Implementation Plan for the Attainment and Maintenance of the National and State Ambient Air Quality Standards for the Commonwealth of Kentucky* (Frankfort, Kentucky), June 1979.

² Appendix A to the *Kentucky Administrative Regulations* 53:010, 1979.

³ *Federal Register*, "Rules and Regulations, Environmental Protection Agency," Vol. 45, No. 18 (Washington, D.C.), January 25, 1980.

⁴ The federal and state highway funds potentially affected if sanctions are imposed upon Kentucky are (a) Jefferson County—\$97,999,974 in federal funds and \$15,112,564 in state funds and (b) Northern Kentucky—\$46,292,500 in federal funds and \$6,712,500 in state funds.

KENTUCKY QUARTERLY ECONOMETRIC MODEL
A COMPARISON OF THE KENTUCKY CONTROL FORECAST OF MARCH 15, 1980
AND THE KENTUCKY ALTERNATIVE FORECAST OF MAY 25, 1980

These tables show the potential effect on Kentucky of a national recession by comparing the May 25, 1980 forecast shown on pp. 3-5 of this publication with the March 15, 1980 forecast presented in the *Kentucky Council of Economic Advisors Annual Report 1980*, pp. 35-38. The March 15, 1980 forecast assumes only a one quarter decline in the level of national economic activity.

	(Difference)							
	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4
Kentucky Personal Income (Millions \$)	-234.367	-310.109	-342.258	-459.652	-577.500	-750.453	-830.000	-796.371
Kentucky Real Personal Income (Millions \$)	-171.773	-273.016	-355.469	-454.637	-532.094	-645.645	-702.563	-700.633
Disposable Personal Income (Millions \$)	-182.793	-239.887	-258.156	-356.746	-451.715	-585.320	-631.887	-613.336
Total Tax & Non-Tax Payments, Kentucky (Millions \$)	-51.574	-70.222	-84.103	-102.906	-125.787	-165.133	-198.113	-183.035
State Tax & Non-Tax Payments (Millions \$)	-22.545	-30.385	-30.977	-33.874	-37.615	-45.370	-53.809	-53.774
Federal Tax & Non-Tax Payments (Millions \$)	-23.564	-32.407	-44.296	-57.193	-73.006	-99.384	-120.321	-105.713
Total Employment (Thousands)	-2.550	-8.702	-19.329	-29.203	-39.424	-49.068	-55.038	-53.497
Non-Agri. Wage & Salary Employment (Thousands)	-3.049	-8.659	-18.552	-28.112	-38.688	-49.137	-56.504	-56.933
Civilian Labor Force (Thousands)	-2.325	-8.287	-18.454	-27.515	-36.871	-45.731	-51.072	-49.225
Kentucky Unemployment Rate (Percent)	0.023	0.058	0.126	0.214	0.305	0.386	0.440	0.447

	(Percent Change)							
	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4
Kentucky Personal Income	-0.84	-1.10	-1.19	-1.56	-1.93	-2.46	-2.63	-2.46
Kentucky Real Personal Income	-1.08	-1.73	-2.25	-2.88	-3.39	-4.11	-4.42	-4.37
Disposable Personal Income	-0.76	-0.98	-1.03	-1.40	-1.74	-2.22	-2.32	-2.19
Total Tax & Non-Tax Payments, Kentucky	-1.40	-1.84	-2.18	-2.59	-3.09	-3.97	-4.61	-4.09
State Tax & Non-Tax Payments	-2.63	-3.42	-3.38	-3.56	-3.85	-4.54	-5.20	-4.98
Federal Tax & Non-Tax Payments	-1.01	-1.35	-1.84	-2.31	-2.88	-3.85	-4.52	-3.81
Total Employment	-0.17	-0.59	-1.32	-2.00	-2.69	-3.34	-3.72	-3.59
Non-Agri. Wage & Salary Employment	-0.25	-0.70	-1.52	-2.32	-3.19	-4.06	-4.65	-4.66
Civilian Labor Force	-0.15	-0.53	-1.18	-1.76	-2.36	-2.91	-3.23	-3.09

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KENTUCKY ECONOMY

Review & Perspective

THE KENTUCKY COUNCIL OF ECONOMIC ADVISORS
University of Kentucky, Lexington, Kentucky 40506

September 1980
Vol. 4, No. 3

KCEA Review and Forecast

by Charles W. Hultman*

The major national economic forecasting services generally predict that economic activity will decline slightly through much of 1980 and that recovery will commence near the end of the year or the first part of 1981. For example, the Wharton Quarterly Model forecast, used as a basis for the Kentucky forecast, projects that real GNP will decline about 1.58 percent in 1980.3 but rise about .21 in 1980.4 as compared with the 9.04 percent decline in 1980.2. Real GNP will expand somewhat through 1981 and 1982. The unemployment rate will remain at a relatively high level—7.52 percent in 1980, 8.17 percent in 1981 and 7.74 percent in 1982.

As compared with the 1975 recession, more of the decline in real GNP in 1980 has been in consumer spending and residential construction. The inventory adjustment, which caused much of the 1975 downswing, is of much less current concern. Both the timing and speed of economic recovery will depend to a great extent upon consumer behavior in the months ahead.

Major changes in federal economic policy are not likely to be established or implemented at the national level until after the November elections. Statements of intended or planned policy may, of course, have an impact on activity in the private sector prior to that time. Both of the major candidates have announced plans for a tax cut. The Reagan proposal contains the largest tax cut to be extended over a 3-year period. The Carter proposal involves a smaller tax cut, but a proportionately larger share of the cut would accrue to low-income families.

An important and encouraging indication of economic recovery was the increase in July of the Composite Index of 12 Leading Indicators. The sharp increase in July—the biggest increase in five years—following a mild increase in June, is a reversal of the trend reflected for previous months. Economic recovery is expected to be a long, gradual process, with unemployment remaining above the average of the 1970s during much of the first half of the 1980s.

Recession has hit the Commonwealth harder than was generally expected would be the case. Kentucky's unemployment has been unusually high during the summer months as

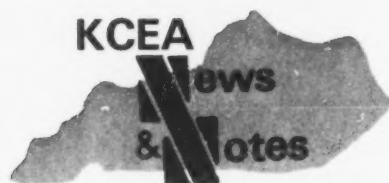
a result of the recession and students seeking summer employment. In absolute terms, the number of unemployed has exceeded the peak 1975 recession level of 120 thousand although, of course, the 1980 labor force is larger. The recession has centered largely on the construction and automobile industry; the major employment declines in Kentucky (in absolute terms) during the second quarter of 1980 have been in construction, transportation equipment, electric and electronic equipment, retail trade, state and local government (largely the education sector), and fabricated metal products. However, employment has decreased in all industries as compared with a year ago, with the exception of finance, insurance and real estate, and the services industry.

As described in other selections in this *Review and Perspective*, the decline has also reduced the expected level of tax revenues generated for use by state government. This, in turn, may cause curtailment of some programs and contribute at least slightly to higher unemployment in the state.

The Kentucky Quarterly Econometric Model (dated September 15, 1980) projects unemployment to be higher in both 1980 and 1981 than in 1979; the major employment gains in 1981 would occur in wholesale and retail trade and coal mining. Real personal income would remain about constant through 1980 and 1981, although economic activity would pick up in a significant fashion during the second quarter of 1981. Inflation will continue to be a problem although it will be somewhat less serious than that experienced during the past few years.

In summary, the Kentucky economy, much as the national economy, is expected to decline through much of 1980; gradual economic recovery would occur during the first part of 1981 although unemployment will remain relatively high. Subsequent developments will depend in large measure on policies initiated by the Administration following the November election. The two major presidential candidates have indicated that a tax reduction would be an appropriate action to stimulate the economy. Continuing inflationary pressure, however, limits the degree of freedom available for the implementation of new monetary and fiscal policies.

*Charles W. Hultman is the Chairman of the KCEA.



The KCEA and the Kentucky Department of Commerce have determined that because of financial constraints, the *Kentucky Personal Income Report* will not be published this year. In past years these two agencies combined resources to publish this report which reproduced county-level tables of disaggregated personal income for all of Kentucky's counties and Area Development Districts, based upon the most current data estimated by the Bureau of Economic Analysis, U.S. Department of Commerce. Anyone with access to the Kentucky Economic Information System (KEIS) can replicate any or all of the personal income tables by using program BEATAB. The county-level personal income data have been released through preliminary 1978 estimates; preliminary state-level personal income estimates for 1979 are scheduled for release in September and will soon be accessible in the annual bank (ABANK) of the KEIS. For further information please contact Margaret Adams, Manager of the KEIS.

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KENTUCKY ECONOMY: Review & Perspective

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This quarterly publication is intended, primarily, to provide forecasts and current information concerning the Kentucky economy. More generally it provides a forum for the publication of short, expository articles dealing with current research or information systems, the focus of which is some aspect of the Kentucky economy.

Articles submitted for publication should be sent to the Editor at the address given above. All submissions will be reviewed independently by persons recognized as knowledgeable in the specific subject discussed. However, the ultimate responsibility for content rests with the author.

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Frequently the staff of the KCEA receive inquiries from throughout the nation, as well as the Commonwealth, concerning the Kentucky Economic Information System (KEIS). Within recent months we have had letters from state officials in Arizona, Colorado, Delaware, Hawaii and Indiana concerning their interest in a state-based and supported information retrieval system for economic and other statistical data. The Employment Committee of the Victoria State government in Australia sent an economist to learn about the KEIS and its possible applications for government and academic purposes in Victoria, Australia. Most recently, a Scottish economist working on the Econometric Model of Scotland spent several days in residence with the staff of the KCEA, learning about the Kentucky Quarterly Econometric Model and the KEIS. In a related activity, Charles Renfro serves on the Model Review Group for the OKI Regional Econometric Forecasting Model sponsored by the Ohio-Kentucky-Indiana Regional Council of Governments.

* * *

Charles W. Hultman, Chairman of the KCEA, appeared with Secretary Grady Stumbo, Kentucky Department for Human Resources and Rick Crawford, Director of the Unemployment Insurance Division of DHR, before the Interim Joint Committee on Labor and Industry. The hearings, held on August 19, 1980, focused on the status of the Kentucky unemployment insurance program.

* * *

The sixth annual meeting of the Kentucky Economic Association will be held at the Harley Hotel in Lexington, October 10, 1980. Among the topics to be addressed are "Banking and Development"; "Demand Studies" considering estimates of mass transit and energy demand; and "Regional Development." Discussions are scheduled on such topics as "Productivity: Union vs. Non-Union," "Is Economics a Viable Undergraduate Major?," and "Coal's Future." The luncheon address will be given by Robert Mueller of Ashland Oil. In the afternoon, Alan Winger, Senior Vice-President of the Federal Home Loan Bank of Cincinnati will forecast the U.S. economy and Charles G. Renfro, Executive Director of the KCEA, will forecast and discuss the national and the Kentucky economies. The meeting is open to the public. For further information or to register, contact: Kris Hobson, KCEA (606) 258-4626.

* * *

Effective July 1, 1980, three KCEA staff members were promoted. Charles G. Renfro was named Executive Director, Roy A. Sigafus became Senior Scientific Analyst/Programmer and Elsie M. Youmans was named Data Analyst. Congratulations to all.

* * *

The July 1980 issue of *Growth and Change*, a quarterly publication of the College of Business and Economics, University of Kentucky, contains several articles of probable interest to our readers. Among these are an analysis of rural in-migration, an article on rural development, and a study of the efficacy of a program to develop Appalachian entrepreneurs. Subscriptions to *Growth and Change* may be obtained by writing the Associate Editor, 644 Maxwellton Court, Lexington, Kentucky 40506.

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Kentucky Econometric Model Forecast

by Charles G. Renfro*

This forecast for Kentucky is based upon the August 30, 1980 *Post-Meeting Control Forecast* made by the Wharton Econometric Forecasting Associates, using the Wharton Quarterly Econometric Model of the United States (Mark 5.8). The Wharton forecast is for a two quarter decline in real GNP beginning in the second quarter of 1980, followed by virtually no growth during the fourth quarter. The forecast suggests that the first quarter of 1981 will be the first recovery quarter, as measured by growth in real GNP. During the third and fourth quarters of 1980, the Wharton Associates expect higher consumer expenditures, but they also expect for these to be offset by declines in residential and nonresidential fixed investment, leading to very little, if any, growth in real final sales. They expect some inventory disinvestment in the last two quarters of 1980, which together with minimal growth in real final sales during these quarters, results in a recovery beginning only in early 1981.

The Wharton forecast also calls for a continued rise in the national unemployment rate to a peak of 8.3 percent in the fourth quarter of 1980. It projects rising interest rates through mid 1981. It also suggests an almost constant rate of inflation during both 1980 and 1981, as measured by the GNP Price Deflator. The percentage increase in the Consumer Price Index is projected to be 13.2 percent, on average, during 1980, but to decline to an average rate of 10.3 percent in 1981.

The implications for Kentucky of this national scenario is shown in the tables on this page and pages 4 and 5 to include a continued decline in nonagricultural wage and salary employ-

ANNUAL SUMMARY TABLE
SELECTED ECONOMIC INDICATORS

Description	1979	1980	1981
Personal Income (Millions)	26208.0	28697.4	31488.0
% Chg.: Ky. Personal Income	13.47	9.50	9.72
Real Personal Income (Millions 1972 \$)	16042.2	15903.9	15905.1
% Chg.: Ky. Real Personal Income	4.19	-0.86	0.01
Wage and Salary Disbursement	15818.5	17057.3	18654.5
Mfg. Wage & Salaries	4669.8	4986.0	5495.8
Non-Mfg. Wage & Salaries	11148.8	12071.3	13158.7
Non-Agri. Wage & Salary Employment (Thousands)	1240.5	1213.7	1224.0
% Chg.: Ky. Non-Agri. Employment	2.53	-2.16	0.86
Manufacturing Employment	294.4	285.7	289.4
Durable Goods	169.3	163.0	168.9
Non-Durable Goods	125.1	122.7	120.5
Non-Mfg., Non-Agri. Employment	946.1	928.0	934.6
Civilian Labor Force (Thousands)	1584.9	1569.1	1592.0
Ky. Unemployment Rate (%)	5.7	6.3	6.4

ment through the fourth quarter of 1980. This decline is the result of projected continued declines in both the manufacturing and nonmanufacturing components of nonagricultural wage and salary employment. In addition, whereas there is predicted continued growth in nominal Kentucky personal income in 1980, at an average rate of 9.5 percent, adjusted for inflation, personal income declines by almost 1.0 percent during the year. The unemployment rate is projected to peak at 6.6 percent during the fourth quarter of 1980 and the first quarter of 1981.

*Charles G. Renfro is Executive Director of the KCEA.

(continued on page 8)

QUARTERLY FORECAST TABLE
SELECTED ECONOMIC INDICATORS

Description	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4
Personal Income (Millions)	27880.9	28293.5	29176.4	29438.7	30117.0	30905.2	31982.9	32947.0
% Chg.: Ky. Personal Income	8.38	6.05	13.08	3.64	9.54	10.89	14.70	12.61
Real Personal Income (Millions 1972 \$)	16060.4	15850.7	15987.1	15717.4	15702.3	15784.0	15999.5	16134.7
% Chg.: Ky. Real Personal Income	-2.65	-5.12	3.49	-6.58	-0.38	2.10	5.57	3.42
Wage and Salary Disbursement	16800.5	16897.4	17196.6	17334.9	17839.2	18322.1	18910.2	19546.3
Mfg. Wage & Salaries	5037.6	4981.7	4948.8	4976.1	5267.3	5419.6	5567.7	5728.5
Non-Mfg. Wage & Salaries	11762.9	11915.7	12247.8	12358.8	12571.9	12902.5	13342.5	13817.8
Non-Agri. Wage & Salary Employment (Thousands)	1233.6	1217.2	1203.3	1200.5	1211.0	1219.6	1228.2	1237.4
% Chg.: Ky. Non-Agri. Employment	-1.96	-5.21	-4.49	-0.95	3.54	2.89	2.85	3.02
Manufacturing Employment	292.7	288.1	282.1	279.7	286.3	287.4	290.4	293.6
Durable Goods	164.9	164.1	161.6	161.3	166.1	167.5	169.6	172.3
Non-Durable Goods	127.9	123.9	120.5	118.3	120.2	119.9	120.8	121.3
Non-Mfg., Non-Agri. Employment	940.9	929.1	921.2	920.8	924.7	932.2	937.8	943.7
Civilian Labor Force	1589.0	1571.9	1558.5	1557.1	1571.2	1584.7	1598.4	1613.7
Ky. Unemployment Rate (%)	6.0	6.2	6.4	6.6	6.6	6.5	6.4	6.2

Forecast Date: September 15, 1980.

KENTUCKY QUARTERLY ECONOMETRIC MODEL

PERSONAL INCOME

DESCRIPTION	QUARTERLY								ANNUAL		
	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4	1979	1980	1981
PERSONAL INCOME (MILLIONS)	27890.9	28293.5	29176.4	29438.7	30117.0	30905.2	31982.9	32747.0	26208.0	28697.4	31488.0
WAGE & SALARY DISBURSEMENTS	16800.5	16897.4	17196.6	17334.9	17839.2	18322.1	18910.2	19546.3	15818.5	17057.3	18654.5
NON-AGRI. WAGES & SALARIES	16662.9	16759.2	17059.8	17199.4	17696.8	18172.8	18762.1	19398.8	15703.6	16920.3	18507.6
MANUFACTURING	5037.6	4981.7	4948.8	4976.1	5267.3	5419.6	5567.7	5728.5	4669.8	4986.0	5495.8
DURABLE GOODS	2870.6	2815.1	2920.9	2865.6	3094.6	3137.4	3236.6	3357.8	2709.2	2843.1	3206.6
NON-DURABLE GOODS	2167.0	2166.6	2127.8	2110.4	2172.7	2282.3	2331.0	2370.7	1960.6	2143.0	2289.2
MINING	1158.3	1286.7	1304.7	1302.9	1339.6	1392.5	1437.3	1493.8	1083.5	1263.1	1415.8
COAL MINING	1083.0	1205.4	1220.5	1216.8	1251.2	1301.8	1343.9	1396.9	1012.8	1181.4	1323.5
OTHER MINING	75.3	81.4	84.1	86.1	88.4	90.6	93.5	96.8	70.7	81.7	92.3
CONTRACT CONSTRUCTION	955.6	870.6	878.4	870.4	782.3	819.9	947.2	1121.2	962.5	993.8	917.6
REGULATED INDUSTRIES	1312.3	1324.2	1369.0	1376.4	1427.9	1431.2	1470.9	1510.4	1222.3	1345.5	1460.1
WHOLESALE & RETAIL TRADE	2556.1	2563.1	2643.0	2681.7	2798.8	2891.7	2991.3	3089.6	2480.7	2611.0	2942.9
SERVICES	2090.1	2162.3	2299.2	2336.1	2372.6	2479.3	2558.2	2619.6	1901.9	2221.9	2507.4
FINANCE, INS. & REAL ESTATE	603.7	603.6	620.1	620.0	655.7	659.0	679.0	684.6	556.4	611.9	669.6
GOVERNMENT	2949.2	2966.8	2996.6	3035.8	3052.7	3079.7	3110.5	3151.0	2826.4	2987.1	3098.5
CIVILIAN GOVERNMENT	2434.2	2444.8	2470.6	2503.8	2508.7	2518.7	2528.5	2564.0	2323.7	2463.4	2530.0
FEDERAL CIVILIAN	649.0	650.2	659.0	678.0	672.1	678.7	682.3	700.4	627.1	659.0	683.4
STATE & LOC. GOV'T	1785.2	1794.6	1811.6	1825.8	1836.6	1840.0	1846.2	1863.6	1696.6	1804.3	1846.6
FEDERAL MILITARY	515.0	522.0	526.0	532.0	544.0	561.0	582.0	587.0	502.8	523.8	568.5
AGRICULTURAL WAGE & SALARY	137.7	138.2	136.8	135.5	142.3	149.3	148.1	147.6	115.0	137.0	146.8
OTHER LABOR INCOME	2051.1	2087.3	2155.2	2196.2	2302.9	2406.7	2530.2	2663.2	1861.6	2122.5	2475.7
PROPRIETORS NET INCOME	2720.2	2535.0	2533.3	2547.2	2692.4	2791.0	2827.2	2891.5	2613.4	2583.9	2800.5
NON-FARM	2066.8	1908.8	1941.8	1987.2	2106.2	2181.4	2251.9	2330.3	1935.5	1976.1	2217.5
FARM	653.3	626.2	591.4	560.0	586.2	609.6	575.3	561.1	677.9	607.8	583.0
RESIDENCE ADJUSTMENT	292.5	294.0	298.2	302.5	312.8	320.6	325.9	331.7	269.6	296.8	322.7
OTHER INCOME ITEMS	7243.3	7696.3	8223.6	8284.2	8375.7	8500.3	8858.6	9015.1	6777.6	7861.9	8687.4
PROPERTY INCOME	3127.5	3430.4	3565.9	3526.9	3544.8	3577.9	3647.5	3719.8	2979.2	3412.7	3622.5
TRANSFER PAYMENTS	4115.8	4265.9	4657.7	4757.3	4830.9	4922.4	5211.1	5295.3	3798.5	4449.2	5064.9
LESS: PERSONAL CONTRIBUTIONS FOR SOCIAL INSURANCE	1226.8	1216.5	1230.4	1226.3	1406.0	1435.6	1469.2	1500.7	1132.9	1225.0	1452.9

FORECAST DATE: SEPTEMBER 15, 1980

KENTUCKY QUARTERLY ECONOMETRIC MODEL

EMPLOYMENT AND HOURS

DESCRIPTION	QUARTERLY								ANNUAL		
	1980.1	1980.2	1980.3	1980.4	1981.1	1981.2	1981.3	1981.4	1979	1980	1981
EMPLOYMENT (THOUSANDS)											
TOTAL EMPLOYMENT	1476.3	1457.4	1441.5	1437.9	1451.0	1464.9	1479.6	1496.1	1478.0	1453.3	1472.9
NON-AGRI. EMPLOYMENT	1384.9	1365.7	1350.2	1346.6	1359.2	1372.1	1387.2	1404.0	1390.6	1361.8	1380.6
WAGE & SALARY EMPLOYMENT	1233.6	1217.2	1203.3	1200.5	1211.0	1219.6	1228.2	1237.4	1240.5	1213.7	1224.0
MANUFACTURING	292.7	288.1	282.1	279.7	286.3	287.4	290.4	293.6	294.4	285.7	289.4
DURABLE GOODS	164.9	164.1	161.6	161.3	166.1	167.5	169.6	172.3	169.3	163.0	168.9
NON-DURABLE GOODS	127.9	123.9	120.5	118.3	120.2	119.9	120.8	121.3	125.1	122.7	120.5
MINING	54.4	53.7	53.5	53.9	55.3	56.7	57.7	58.9	54.8	53.9	57.1
COAL MINING	49.0	48.5	48.3	48.6	49.9	51.2	52.1	53.2	49.5	48.6	51.6
OTHER	5.3	5.2	5.2	5.3	5.4	5.5	5.6	5.7	5.2	5.2	5.6
CONTRACT CONSTRUCTION	66.5	59.3	55.4	51.0	52.0	54.8	57.1	56.9	69.0	58.0	55.2
REGULATED INDUSTRIES	69.5	70.0	68.6	67.6	66.5	67.2	67.9	68.8	70.4	68.9	67.6
WHOLESALE & RETAIL TRADE	260.8	257.3	258.2	261.9	265.9	269.6	273.5	277.5	269.8	259.5	271.6
SERVICES	210.3	212.7	212.0	213.9	214.3	215.7	215.8	216.7	204.5	212.2	215.6
FINANCE, INSURANCE & REAL ESTATE	49.3	47.8	46.1	46.2	47.0	46.7	46.3	46.2	49.7	47.3	46.6
GOVERNMENT	230.1	228.4	227.5	225.3	223.8	221.5	219.5	218.6	227.8	228.1	220.8
FEDERAL	39.0	39.0	39.0	39.0	38.0	38.0	38.0	38.0	39.0	39.0	39.0
STATE & LOCAL	191.1	189.4	188.5	187.3	185.8	183.5	181.5	180.6	188.8	189.1	182.8
EDUCATION	111.3	110.1	109.8	109.2	108.8	107.3	106.1	106.0	105.3	110.1	107.0
OTHER	79.8	79.3	78.7	78.1	77.0	76.2	75.4	74.6	83.5	79.0	75.8
ALL OTHER NON-AG EMPL	151.3	148.5	146.8	146.1	148.2	152.5	159.0	166.6	150.2	148.2	156.6
AGRICULTURAL	74.4	74.7	74.4	74.3	74.8	75.7	75.5	75.1	70.3	74.4	75.3
HIRED WORKERS	24.3	24.3	23.7	23.1	23.4	24.0	23.4	22.9	21.1	23.8	23.4
FAMILY & OTHER UNPAID	50.1	50.4	50.7	51.2	51.4	51.8	52.1	52.2	49.3	50.6	51.9
HOURS & MANHOURS											
AVERAGE WEEKLY HOURS											
DURABLE MANUFACTURING	40.7	40.1	39.2	39.5	39.9	40.3	39.9	39.9	40.1	39.9	40.0
NON-DURABLE MANUFACTURING	40.2	40.6	39.7	39.8	40.0	40.0	40.0	40.0	39.5	40.1	40.0
MANHOURS											
TOTAL MANUFACTURING	6163.0	6037.0	5781.3	5763.3	5945.9	6003.6	6034.5	6102.4	6099.1	5936.1	6021.6
DURABLE GOODS	3489.7	3420.1	3292.8	3314.7	3446.3	3509.9	3522.4	3578.7	3531.7	3379.3	3514.3
NON-DURABLE GOODS	2673.3	2616.8	2488.5	2448.6	2499.5	2493.7	2512.1	2523.7	2567.5	2556.8	2507.3
DAYS & MAN-DAYS											
COAL MINING DAYS WORKED	48.2	53.4	53.4	52.0	51.3	51.1	51.0	51.0	47.1	51.7	51.1
COAL MINING MAN DAYS	9459.0	10354.0	10310.9	10109.4	10224.0	10461.9	10621.1	10858.2	9339.7	10058.3	10541.3
LABOR FORCE											
RESIDENT ADJUSTED LABOR FORCE	1589.0	1571.9	1558.5	1557.1	1571.2	1584.7	1598.4	1613.7	1584.9	1569.1	1592.0
LABOR FORCE (NOT RES. ADJ.)	1572.0	1554.9	1541.5	1540.1	1554.2	1567.7	1581.4	1596.7	1567.9	1552.1	1575.0
UNEMPLOYMENT	95.7	97.5	100.0	102.2	103.2	102.8	101.7	100.6	89.9	98.8	102.1
UNEMPLOYMENT RATE (%)	6.0	6.2	6.4	6.6	6.6	6.5	6.4	6.2	5.7	6.3	6.4

FORECAST DATE: SEPTEMBER 15, 1980

selected indicators OF ECONOMIC A

These tables of selected indicators of economic activity were prepared by a special-purpose program of the Kentucky Economic Information System. The data in the tables are reported figures which were obtained from a variety of state and federal agencies, as well as from private firms.

Apr. 1980	May 1980	June 1980	Qtr. II 1980	% Chg. 80-I 80-II	% Chg. 79-II 80-II
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UNITED STATES DATA

CONSUMER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)					
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ALL ITEMS	242.50	244.90	247.60	245.00	3.61 14.45
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), FOOD AND BEVER	242.80	244.10	245.70	244.20	2.14 7.14
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), HOUSING	257.90	261.70	266.70	262.10	4.52 17.76
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), APPAR & UPKEEP	177.30	177.50	177.20	177.33	2.52 7.00
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), TRANSPORTATION	246.80	249.00	249.70	248.50	4.00 19.62
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), MEDICAL	262.00	263.40	264.70	263.37	2.34 11.42
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), ENTERTAINMENT	202.50	204.00	205.30	203.93	3.05 8.76
CONSUMER PRICE INDEX, ALL URBAN CONSUMERS (CPI-U), OTHER	209.80	211.20	212.50	211.17	1.64 8.92
CONSUMER PRICE INDEX (CPI-U), SPECIAL INDEX: ENERGY	358.80	363.20	367.80	363.27	6.06 38.58
PRODUCER PRICE INDEXES (1967=100, NOT SEASONALLY ADJUSTED)					
PRODUCER PRICE INDEX, ALL FINISHED GOODS	240.00	241.00	242.60	241.20	2.41 13.45
PRODUCER PRICE INDEX, FINISHED CONSUMER GOODS	241.60	242.80	244.50	242.97	2.39 14.88
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS	274.50	275.80	277.70	276.00	2.07 15.92
PRODUCER PRICE INDEX, INTERMEDIATE MATERIALS FOR MANUFACTURING	259.70	261.80	263.90	261.80	1.37 13.50
PRODUCER PRICE INDEX, CRUDE MATERIALS	296.90	300.70	299.50	299.03	1.28 6.14
PRODUCER PRICE INDEX, CRUDE FOODSTUFFS AND FEEDSTUFFS	235.50	242.90	242.50	240.30	-2.76 -4.08
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, SPOT (1967=100)	393.60	394.70	394.50	394.27	0.86 0.56
PRODUCER PRICE INDEX, BITUM. COAL, INDUSTRIAL, CONTRACT (JUNE 76=100)	131.30	131.80	132.50	131.87	1.05 3.89
CONSUMER PRICES: ENERGY (U.S. CITY AVERAGE)					
AVG PRICE FOR UTILITY (PIPED) GAS, PER 40 THERMS	16.33	16.92	16.99	16.75	4.58 19.99
AVG PRICE FOR UTILITY (PIPED) GAS, PER 100 THERMS	36.20	38.77	38.86	37.94	7.00 23.76
AVG PRICE FOR ELECTRICITY, PER 500 KWH	28.43	28.96	30.93	29.44	7.00 18.18
AVG PRICE FOR FUEL OIL #2 (HOME HEATING OIL), PER GALLON	1.01	1.01	1.02	1.01	4.33 52.51
AVG PRICE, GASOLINE, ALL TYPES, PER GALLON	1.24	1.24	1.25	1.24	5.84 50.30
AVG PRICE, GASOLINE, LEADED REGULAR, PER GALLON	1.21	1.21	1.22	1.21	5.72 51.45
AVG PRICE, GASOLINE, UNLEADED REGULAR, PER GALLON	1.26	1.27	1.27	1.27	5.82 49.16
AVG PRICE, GASOLINE, LEADED PREMIUM, PER GALLON	1.29	1.29	1.30	1.30	6.23 48.07
LABOR FORCE (SEASONALLY ADJUSTED)					
LABOR FORCE, CIVILIAN (MILLIONS)	104.42	105.14	104.54	104.70	0.49 2.29
EMPLOYMENT, TOTAL (MILLIONS)	97.15	96.99	96.54	96.89	-0.93 0.44
EMPLOYMENT, AGRICULTURE	3.24	3.38	3.19	3.27	-1.43 1.11
EMPLOYMENT, NONAGRICULTURAL INDUSTRIES	93.91	93.61	93.35	93.62	0.91 0.42
UNEMPLOYMENT RATE, TOTAL	7.00	7.80	7.70	7.50	22.28 30.06
UNEMPLOYMENT RATE, BLACKS & OTHER RACIAL MINORITIES	12.60	13.90	13.60	13.37	14.25 16.57
OTHER SELECTED NATIONAL INDICATORS:					
U.S. GROSS NATIONAL PRODUCT (B \$) (% CHG AT ANNUAL RATE)	NA	NA	NA	2521.30	0.08 8.22
U.S. REAL GROSS NATIONAL PRODUCT (B 72*) (% CHG AT ANNUAL RATE)	NA	NA	NA	1408.60	-9.63 -0.96
PERSONAL INCOME, TOTAL, SEASONALLY ADJUSTED (B \$)	2071.50	2078.10	2089.00	2079.50	1.07 9.88
COMPOSITE INDEX OF 12 LEADING INDICATORS (1967=100)	126.10	123.20	125.00	124.77	-6.54 -11.58
INDEX OF INDUSTRIAL PRODUCTION, SEASONALLY ADJUSTED (1967=100)	148.20	144.30	141.00	144.50	-5.06 4.09
INTEREST RATE, YIELD ON 3 MONTH TREASURY BILLS	14.00	9.15	7.00	10.05	-25.33 7.22
PRIVATE RESIDENTIAL BLDG. 16000 PERMIT ISSUING PLACES (SABJ THOU)	789.00	825.00	1078.00	2692.00	-20.99 -44.32
TOTAL INSTALLMENT CREDIT OUTSTANDING AT END OF MONTH (B \$)	306.13	303.76	301.38	303.76	-1.46 5.75

KENTUCKY DATA

	Apr. 1980	May 1980	June 1980	Qtr. II 1980	% Chg. 80-I 80-II	% Chg. 79-II 80-II
LABOR FORCE (NOT SEASONALLY ADJUSTED, THOUSANDS)						
LABOR FORCE, TOTAL CIVILIAN	1577.50	1581.60	1605.00	1588.03	-0.35	1.38
EMPLOYMENT, TOTAL, BY PLACE OF RESIDENCE	1479.00	1480.10	1481.00	1480.30	0.14	0.57
EMPLOYMENT, AGRICULTURAL	60.60	60.50	62.00	70.63	17.78	-1.49
EMPLOYMENT, TOTAL NON-AGRICULTURAL	1418.40	1411.60	1399.00	1409.67	-1.21	-0.52
UNEMPLOYMENT RATE	6.20	6.40	7.70	6.74	-6.94	35.95
EMPLOYMENT, TOTAL NON-AGRICULTURAL WAGE AND SALARY	1223.70	1221.10	1203.60	1216.13	-0.52	-3.15
EMPLOYMENT, BITUMINOUS COAL & LIGNITE MINING (SIC 12)	49.10	47.10	47.20	47.80	-1.92	-3.50
EMPLOYMENT, CONTRACT CONSTRUCTION	60.30	59.10	61.20	60.20	3.91	-17.68
EMPLOYMENT, TOTAL MANUFACTURING	200.90	279.80	268.00	276.50	-3.43	-7.44
EMPLOYMENT, MANUFACTURING, DURABLE	157.60	157.10	146.10	153.60	-4.26	-11.42
EMPLOYMENT, MANUFACTURING, NON-DURABLE	123.30	122.70	122.70	122.90	-2.38	-1.94
EMPLOYMENT, TRANSPORTATION, COMMUNICATIONS & PUBLIC UTILITIES	68.90	68.90	69.20	69.00	-0.05	-2.31
EMPLOYMENT, WHOLESALE & RETAIL TRADE	260.90	261.90	260.60	261.13	-1.67	-2.03
EMPLOYMENT, FINANCE, INSURANCE & REAL ESTATE (SIC 60-67)	50.30	50.60	50.90	50.60	0.26	0.13
EMPLOYMENT, SERVICES (SIC 70-80)	211.20	214.20	214.00	213.13	3.53	3.50
EMPLOYMENT, CIVILIAN GOVERNMENT	237.00	234.10	226.00	232.37	-0.51	-0.23
EMPLOYMENT, STATE & LOCAL GOVERNMENT	196.10	192.20	193.50	190.60	-1.79	-0.92
HOURS AND EARNINGS OF PRODUCTION WORKERS IN MANUFACTURING						
AVG WEEKLY HOURS, PROD WORKERS, TOTAL MANUFACTURING	38.80	38.40	38.70	38.63	-0.69	-1.28
AVG WEEKLY HOURS, PROD WORKERS, MANUFACTURING DURABLES	39.30	37.90	38.70	38.63	-2.19	-2.52
AVG WEEKLY HOURS, PROD WORKERS, NON-DURABLE MANUFACTURING	38.20	39.00	38.60	38.60	1.22	0.35
AVG HOURLY EARN, PROD WORKERS, TOTAL MANUFACTURING	7.21	7.25	7.27	7.24	3.10	7.47
AVG HOURLY EARN, PROD WORKERS, MANUFACTURING DURABLES	7.66	7.73	7.79	7.73	3.11	9.39
AVG HOURLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	6.60	6.63	6.62	6.62	3.82	4.97
AVG WEEKLY EARN, PROD WORKERS, TOTAL MANUFACTURING	279.75	278.40	281.35	279.83	2.47	6.08
AVG WEEKLY EARN, PROD WORKERS, MANUFACTURING DURABLES	301.04	292.97	301.47	298.49	0.85	6.61
AVG WEEKLY EARN, PROD WORKERS, NON-DURABLE MANUFACTURING	252.12	258.57	255.53	255.41	5.09	5.33
INDEX OF PRICES RECEIVED BY KY FARMERS (1972=100)						
INDEX OF PRICES REC'D BY KY FARMERS, CROP AND LIVESTOCK PRODUCTS	164.85	163.99	165.76	164.87	-4.01	-7.93
INDEX OF PRICES REC'D BY KY FARMERS, LIVESTOCK PRODUCTS	153.92	151.51	155.99	153.77	-12.92	18.95
INDEX OF PRICES REC'D BY KY FARMERS, CROPS	171.74	171.80	171.88	171.81	1.84	0.31
MINING (MILLIONS OF TONS, THOUSANDS OF TAX DOLLARS)						
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, EASTERN KY, TOTAL	9.30	8.89	9.40	27.58	26.53	-2.23
BITUMINOUS COAL & LIGNITE, PHYSICAL OUTPUT, WESTERN KY, TOTAL	3.59	3.92	3.53	11.04	2.74	4.76
AVG HOURLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	11.49	11.30	11.35	11.38	2.03	3.99
AVG WEEKLY EARN, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	448.11	461.04	474.43	461.19	1.66	-1.36
AVG WEEKLY HOURS, PROD WORKERS, BITUMINOUS COAL & LIGNITE MINING	39.00	40.80	41.80	40.53	-1.06	-5.07
TAX RECEIPTS, COAL SEVERANCE, CONSOLIDATED, TOTAL	16510.31	14606.72	15496.68	47721.71	*	11.46
CONSTRUCTION (MILLIONS OF \$, NO. OF PRIVATE RESID. UNITS—NOT SEAS ADJ)						
VALUE OF CONSTRUCTION CONTRACTS, RESIDENTIAL & NON-RES	112.70	137.40	140.10	390.20	37.39	-16.12
PERMIT AUTHORIZED CONSTRUCTION, NO. OF 1-FAMILY RESID. UNITS	394.00	480.00	542.00	1506.00	50.45	-49.12
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, 1-FAMILY RESID. UNITS	16.45	18.60	26.46	61.50	52.30	-47.32
PERMIT AUTHORIZED CONSTRUCTION, NO. OF RESID. UNITS, TOTAL	669.00	1001.00	1179.00	2849.00	70.39	30.95
VALUE OF PERMIT AUTHORIZED CONSTRUCTION, ALL RESID. UNITS, TOTAL	24.44	25.71	39.70	89.86	57.44	-36.16
ELECTRIC POWER SALES (MIL KWH)						
ELECTRICITY SALES, COMMERCIAL & INDUSTRIAL TOTAL	3241.58	3278.90	2982.01	9502.48	4.39	-2.37
ELECTRICITY SALES, COMMERCIAL & INDUSTRIAL EXCL TO PAD DIFF PLANT	2032.24	1998.50	2054.96	6085.69	6.66	-2.36
ELECTRICITY SALES TO PADUCAH GASEOUS DIFFUSION PLANT, TOTAL	1209.34	1280.40	927.05	3416.80	32.27	-2.38
RETAIL SALES ('000\$, '000 CARS)						
TAX RECEIPTS, GENERAL FUND, SALES AND GROSS RECEIPTS	52836.84	55291.76	67591.56	175720.13	*	0.65
NEW PASSENGER CAR REGISTRATIONS, TOTAL, NOT SEAS. ADJ.	6.09	4.38	6.42	16.89	39.70	-62.17
FINANCE AND INSURANCE (MILLIONS OF DOLLARS)						
NET LOANS MADE & ACQUIRED BY KY. SAVINGS & LOAN ASSOCIATIONS	21.31	15.20	22.72	59.22	-12.66	-70.65
SALES OF ORDINARY LIFE INSURANCE	415.66	395.55	365.00	1176.21	11.60	10.48
SELECTED STATE GOVERNMENT RECEIPTS						
TAX AND NONTAX RECEIPTS, GENERAL FUND, TOTAL (MIL \$)	126.61	146.00	192.05	454.66	*	3.26
TAX RECEIPTS, GENERAL FUND, SALES & USE TAXES, TOTAL (THOU \$)	49213.29	49203.82	52333.45	150750.50	*	-0.93
TAX RECEIPTS, GENERAL FUND, INCOME TAX, INDIVIDUAL (THOU \$)	25778.34	50149.78	34145.25	118073.31	*	4.47
TAX RECEIPTS, GENERAL FUND, INCOME TAX, CORPORATION (THOU \$)	16868.53	6284.41	44398.60	67551.50	*	-1.17
TAX RECEIPTS, STATE ROAD FUND, STATE SHARE (THOU \$)	33329.36	25835.38	25658.75	84823.44	*	-17.12
TAX RECEIPTS, STATE ROAD FUND, MOTOR FUELS NORMAL, TOTAL (THOU \$)	14043.23	15187.55	16043.04	45267.82	*	-8.17
TAX RECEIPTS, STATE ROAD FUND, MOTOR VEHICLE USAGE TAX (THOU \$)	8326.89	7537.53	7372.25	23236.68	*	-28.64

PRIVATE SOURCES FOR THE ABOVE DATA INCLUDE:

F. W. DODGE DIVISION (MCGRAW-HILL INFORMATION SYSTEMS COMPANY),

VALUE OF CONSTRUCTION CONTRACTS;

EDISON ELECTRIC INSTITUTE, ELECTRIC POWER SALES;

LIFE INSURANCE MARKETING & RESEARCH ASSOCIATION,

SALES OF ORDINARY LIFE INSURANCE;

R. L. POLK & COMPANY, NEW CAR REGISTRATIONS

* = QUARTER TO QUARTER COMPARISONS NOT MEANINGFUL DUE TO SEASONAL VARIATION

(continued from page 3)

In fact, it now appears that the U.S. economy has experienced only a one quarter real GNP decline in 1980 (specifically during the months from March through June), as was predicted in the 1980 *Annual Report* of the Kentucky Council of Economic Advisors. The second quarter decline was more substantial than was expected in March, a real GNP decline of 9.6 percent. This is a record for the post World War II period and, in the magnitude of the decline, largely reflects the credit restricting monetary policies announced March 14, 1980. What appears to have occurred is a nearly simultaneous reaction to the credit restriction measures by both consumers and businesses during the March to June period. However, with the decline in interest rates since May and the lifting of the credit restrictions, housing starts, automobile purchases, and employment all began to increase again. Except for the fact that interest rates also began to increase once more during the third quarter of 1980, the outlook unmistakably would be for a recovery beginning in third quarter of 1980 and continuing into 1981.

Given the actual performance of the U.S. economy during the third quarter of 1980, the Wharton forecast and the complementary forecast for Kentucky that is given in the tables on pages 3-5 should be regarded as being somewhat more pessimistic in tone than what is likely to occur. The very weak growth predicted by the Wharton Associates to occur in the fourth quarter of 1980 is actually likely to occur in the third quarter and to be followed by more robust growth in the next quarter. This backward shift is also present in the Kentucky forecast. It is much more likely that the fourth quarter of 1980 will be characterized by employment growth in Kentucky than by the decline shown in the tables. This Kentucky forecast should be interpreted simply as indicating the effect on Kentucky if the August 30 Wharton national forecast were to be realized.

The outlook for the United States, and hence Kentucky, during the next three or four quarters is clouded by two uncertainties in particular. The first is the monetary policies that will be pursued by the Federal Reserve Board. The rise in interest rates since July, including an increase in both prime and mortgage rates, to some degree reflects loan demand, including U.S. government borrowing, but it apparently also reflects Federal Reserve Board policies. The July 24, 1980 statement by Paul A. Volcker before the U.S. Senate Budget Committee, for example, indicates the Board's continued concern about fighting inflation.¹ Some economists feel that a renewed recession is possible as a result of current monetary policies; this is not that likely, but the possibility cannot be dismissed.

The second uncertainty is the proposed tax cut for 1981. The Wharton forecast incorporates the assumption of a tax cut of approximately \$27 billion, with half going to individuals and half to businesses. Wharton projects this tax cut to take effect at the beginning of 1981. This assumption is based upon the fact that both major candidates and several congressional

groups have endorsed a reduction in taxes in 1981, in the range of \$25 to \$35 billion. The tax cut will have a stimulative effect on the economy, but in conjunction with the somewhat restrictive set of monetary policies, the net result is also likely to be higher interest rates than otherwise.

The apparent policies of the Federal Reserve Board and the proposed fiscal policies are contradictory. But in addition, the performance of the economy during the next three to six months will undoubtedly have an effect on the policies that are pursued in early 1981. Stronger economic performance in the second half of 1980 than indicated by the Wharton forecast is likely to result in a lessening likelihood of a tax cut in early 1981 and continued active restraint in monetary policies. Weaker economic performance could lead both to increased calls for a tax cut and some relaxation in the monetary policies pursued. These considerations suggest, at best, a rather sluggish recovery during the next few quarters, in terms of the average rate of real GNP increase.

In general, during the next six to eight quarters, the performance of the Kentucky economy is likely to reflect that of the United States economy. Home appliances and automobile parts account for a significant proportion of the manufacturing output of Kentucky, so that Federal Reserve Board monetary policies and the general performance of the United States economy will be important as determinants of the level of production in Kentucky.

However, Kentucky is also a coal producing state—the leading coal producing state—and the performance of this industry may not simply reflect U.S. economic activity levels. Recently, there have been layoffs in Kentucky coal mines; in a number of instances, the layoffs have been the result of slack demand for steel, hence metallurgical coal. The soon-to-be implemented Kentucky Permanent Regulatory Program may also have some negative effect on employment, because of its effect on small operators. There is also the possibility of a winter strike, because of the United Mine Workers' contract renewal. But at the same time, considering the next year or two, there are several reasons to expect a net increase in mining employment. The regulatory program will affect the employment of operators who stay in business, for it will require coal producers to hire additional technically qualified people. The conversion from oil to coal-fired generation of electricity in the northeastern states, to the extent that this occurs, will increase coal production. Similarly, strong foreign demand for U.S.-produced coal is likely to have both direct and indirect effects on the Kentucky industry. Finally, to the extent that there is national economic recovery, the resultant greater industrial and consumer demand for electricity will increase the demand for coal. The Kentucky forecast indicates some decline in coal mining employment between 1979 and 1980, but it also predicts renewed employment gains in 1981.

Considering the state of Kentucky alone, the forecast given in the tables defines a level of economic performance that the actual performance of the state economy should at least equal. The danger on the horizon is the possibility of monetary policies that cause a resumed decline in economic growth; but in the absence of the implementation of such policies, recovery can be expected in late 1980 and into 1981.

¹Paul A. Volker, "Statement before the Budget Committee, U.S. Senate, July 24, 1980," *Federal Reserve Bulletin*, August 1980, pp. 636-640.

Technical Note:

The Kentucky forecast tables on pages 3-5 have two characteristics that should be noted. The first is that for 1979, as well as for 1980 and 1981, all of the numbers in the tables are forecasts. Some data are available on the performance of the Kentucky economy during 1979, but not a sufficient amount to allow this year to be taken as given. As a result, it has been necessary to begin the forecast period with the first quarter of 1979, taking account of those observations on economic variables that are already available, although none are used directly in the forecasts. Thus, even though the only quarterly numbers shown in the forecast tables are those for 1980 and 1981, the forecasts were actually made for the entire period from the first quarter of 1979 through the fourth quarter of 1981.

The second characteristic of the tables is that the figures shown for the labor force, total employment, unemployment, and the unemployment rate are not exactly comparable in concept with those published by the Kentucky Department for Human Resources. The Department for Human Resources is required to construct their estimates in accordance with a standard methodology laid down by the Bureau of Labor Statistics, U.S. Department of Labor. This methodology involves the use of the Current Population Survey, U.S. Bureau of the Census, to arrive at estimates for these quantities that are independent of the employment results for the individual industries. In contrast, the Kentucky model forecasts are made by summing the forecasted industry employment figures and then adjusting for net out-of-state commuting by Kentucky residents.

Editor's Note: In the June issue of this quarterly we published estimates of Kentucky revenue made by Lawrence K. Lynch on behalf of the Kentucky Legislative Research Commission. In this issue we are publishing an article which describes the revenue estimates made by the staff of the Kentucky Department of Revenue for fiscal 1980-81, as well as an article in which Dr. Lynch sets forth revisions to his earlier forecast. The forecast tables published with both articles here were the basis for the testimony given by Robert Allphin, Commissioner of the Kentucky Department of Revenue and by Dr. Lynch, at a meeting of the Kentucky Legislature's Joint Committee on Appropriations and Revenues, July 29, 1980.

Kentucky Revenue 1980-81: Estimates and Economic Assumptions

by Richard Thalheimer and William B. Gardner II*

The Kentucky Department of Revenue has fundamentally altered its basic assumptions concerning fiscal 1980-81 as a result of its analysis of the unanticipated severity of the current national economic downturn. Specifically, fiscal 1980-81 is no longer perceived as being strictly a recovery year. We assume that the national economy will continue to decline in the first two quarters of the fiscal year, but at a much lower rate than the decline experienced in the last quarter of fiscal 1979-80. Improvements in real economic growth, controlled for price inflation, should begin toward the end of the second quarter of the fiscal year, but real growth for the entire fiscal year will only be level or slightly positive, at best.

Based upon current information, Kentucky personal income is estimated to increase at about a 10% rate over the fiscal year, and this should produce the Revenue Department's forecasted 14.7% increase in personal income tax revenues. A federal tax cut is anticipated in 1981 but its potential effect on receipts should be minimized because of the time lag which will occur before this federal action can have a stimulatory impact on the Kentucky economy. Because of employee layoffs in 1980, there will be an increase in personal income tax refunds at the end of the fiscal year but the impact of this on the General Fund will be somewhat moderated by the lack of carryover tax refunds from fiscal 1979-80. Because of improved processing of income tax returns most 1979 refunds were paid in fiscal 1979-80.

General Sales and Use Tax receipts should increase moderately, primarily reflecting continuing inflation. We expect that at the bottom of a recession the demand for consumer durables will continue to be sluggish as households will generally tend to increase their savings rather than take on additional debt to finance expenditures. We anticipate a gradual increase in new housing construction due to an easing of credit restrictions and a decline in mortgage interest rates. Improvement will be slow in this sector due to builders' large inventories and to continued uncertainty about the economy. The recent exemption of residential utilities from the tax base also contributes to the slower increase in the General Sales and Use Tax for fiscal 1980-81.¹

The increasingly heterogeneous mix of Kentucky's industrial base makes it more parallel to that of the nation and indicates that corporate income tax receipts will not be as insulated from vagaries in the national economy as before. The quarterly ratios of national corporate profits before taxes to Kentucky corporate profits before taxes illustrates the remarkably stable nature of this relationship in recent years.² The national forecasting services (Wharton and Data Resources, Inc.) expect that U.S. corporate profits will be down 15-20% in fiscal 1980-81. A decline in Kentucky corporate profits is anticipated as well, but should be somewhat more stable due to the large size of Kentucky's energy sector.³

The market for coal is not expected, however, to improve dramatically. A 5% rate of growth in price and a 2% increase in production is forecasted.⁴ Domestic coal markets are too soft to allow a more optimistic forecast, particularly for metallurgical coals. While President Carter has initiated steps to increase the nation's reliance on coal, these actions are seen as

*Richard Thalheimer is Director of Research and William B. Gardner II is Research Advisor, both of the Kentucky Department of Revenue.

having little impact in 1980-81. The increase in the oil production tax rate from $\frac{1}{2}\%$ to $4\frac{1}{2}\%$ is expected to help revenues significantly. Coupled with an anticipated price increase of 15% (to \$43.70 a barrel) and a 6% growth in production (to 6.04 million barrels), this tax should now yield approximately \$12 million annually.

The minerals severance tax on natural gas production is expected to reach \$4.2 million in 1980-81 as originally projected. The new severance tax on all remaining minerals has been revised down from \$9.2 million to \$5 million because the reporting procedures stipulate that existing inventories must be consumed before new production is taxed. In addition, transportation costs (excluded from this tax) now appear to be a much larger component of other minerals' value than was anticipated when the original estimate was made.

Increasing energy costs have caused problems for two major Transportation Fund accounts. Increased conservation and rising prices have decreased gasoline sales. A further reduction of 1.2% in gallonage is anticipated for 1980-81. The slackening demand has also retarded growth of the wholesale price of gasoline. The wholesale price is not expected to pierce the \$1.00 floor until the third quarter of the fiscal year, thus minimizing the impact of the recent revision in the gasoline tax rate from 9 cents per gallon to 9% of the wholesale price. Failure by the U.S. Congress to pass the 10 cents federal import tax is also a factor in the overall revision of anticipated tax receipts.⁵

Finally, the marked slowdown in automobile sales observed thus far in 1980 is expected to continue throughout fiscal 1980-81. We assume a 10% decrease in automobile sales and an 8% increase in price, similar to that predicted for the national economy, for a net reduction of 2% in motor vehicle usage tax receipts.⁶

The forecasts presented here are made under the general assumption that processing and enforcement of individual taxes will proceed at their normal pace. The following table

gives the revenue estimates for taxes in each fund, along with a calculation of the projected percent growth of each tax compared to the receipts for 1979-80.

Notes

¹ The General Sales and Use Tax forecast was generated by using a univariate Box-Jenkins time series model fit to monthly receipts data. The data were adjusted for exemptions of food and utilities. Sales tax on utilities was forecast using price information from the Wharton and DRI national econometric model forecasts.

The individual income tax was forecast using a univariate Box-Jenkins time series analysis forecast model fit to quarterly net receipts data, where net receipts are defined as withholding plus declarations plus final payments less refunds.

² Quarterly Ratios of Corporate Profits Before Taxes:

Year	U.S. to Kentucky			
	I	II	III	IV
1976	.007	.003	.005	.005
1977	.008	.002	.005	.005
1978	.008	.003	.005	.006
1979	.007	.003	.006	.006

³ We were unable to fit a statistical model to the highly volatile quarterly corporation income tax receipt series. This tax was forecast using the historical ratios outlined above (Note 2). Kentucky's distribution of the corporation income tax mix by Standard Industrial Classification was also considered.

⁴ The coal severance tax was forecast using separate forecasts of monthly price and output series. A price index was constructed from a sample of 30 companies producing in Kentucky over a 35-month period using severance tax filing information. A Holt-Winters univariate time series smoothing model was used to generate the base forecast. Coal output was forecast using a 95-month series for Kentucky generated by the U.S. Department of Energy. A classical decomposition time series model was fit to the data. The percent increase in both price and output was applied to the 1979-80 collection figure to obtain the 1980-81 forecast.

⁵ The motor fuels tax, a major component of the Transportation Fund, was forecast using separate price and consumption (net taxable gallonage) estimates. Gallonage was forecasted using 182 monthly

GENERAL FUND AND TRANSPORTATION FUND TAX RECEIPTS ACTUAL, FISCAL YEAR 1979-80 DEPARTMENT OF REVENUE ESTIMATES, FISCAL YEAR 1980-81 (Millions of Dollars)

	Actual 1979-80	Estimated 1980-81	Percent Change		Actual 1979-80	Estimated 1980-81	Percent Change
General Fund				Transportation Fund			
Sales and Use	607.3	652.0	7.4	Motor Fuels Normal ²	187.1	185.0	(1.1)
Individual Income	505.8	580.0	14.7	Motor Vehicle Usage ³	97.1	95.7	(1.4)
Corporation Income	158.8	150.0	(5.5)	Coal Severance Transfer ⁴	32.6	42.3	-
Coal Severance	176.4	188.8	7.0	Other Transportation Fund	54.8	47.0	(14.2)
Less Transfer	(32.6)	(42.3)					
Other General Fund ¹	366.3	392.5	7.2				
Total General Fund	1,782.0	1,921.0	7.8	Total Transportation Fund	371.6	370.0	(0.4)

¹ Individual estimates are made for each tax comprising this Fund.

² Includes Motor Fuels Normal Use tax of \$7.4 million in 1979-80 and estimated \$8.0 million in 1980-81.

³ Includes Motor Vehicle Rental Usage tax.

⁴ This figure is based upon retirement of bond issues and is supplied by the Kentucky Department of Transportation.

observations generated by the Kentucky Department of Revenue. A multiplicative Holt-Winters smoothing model was fit to the data and used to generate the forecast of net gallonage consumption. The tax rate is set at 9 percent of the wholesale price with a floor of \$1/gallon, as obtained by a quarterly survey of dealers conducted by the Kentucky Department of Revenue. The rate is set one-quarter in advance based on the survey results. The rate for the first quarter of 1980-81 was determined as 9 cents/gallon based on April 1980 survey results of 97.9 cents/gallon wholesale price. The wholesale price was assumed to

remain less than or equal to \$1/gallon for the second quarter and to increase 5 cents/gallon to \$1.05/gallon respectively for the remaining two quarters of the fiscal year.

⁶The motor vehicle usage tax is the second major Transportation Fund revenue source. National forecast services, Wharton and DRI, were used to obtain price and retail sales estimates for forecasting this tax. A 10 percent decline in passenger car sales was combined with an 8 percent increase in price to generate the 1980-81 Kentucky forecast of the Motor Vehicle Usage tax.

The Revised Outlook for Kentucky Tax Revenues

by Lawrence K. Lynch*

The sharp drop in economic activity in the second quarter of calendar 1980, precipitated by the stringent monetary policy adopted by the Federal Reserve Board in March 1980, led to Kentucky tax receipts well below the estimates for fiscal 1979-80 presented in the June issue of *Review & Perspective*. The recession will also lead to reduced receipts for the next two fiscal years.

In the General Fund, the major source of error was the Individual Income Tax, which was overestimated by \$45.7 million (9.0 percent). The author's estimate was high for three reasons. First, personal income grew at a rate about 1.4 percent less than the KCEA's Econometric forecast had indicated, leading to an overestimate of about \$10.3 million. Second, tax refunds were paid more promptly than in the past, so that about \$10 million in refunds which formerly would have been paid in fiscal 1980-81 were paid in fiscal 1979-80. These two factors still leave a \$25.4 million shortfall which resulted from a failure of the elasticity model. As reported in the June *Review & Perspective*, Individual Income Tax receipts tend to grow by an average of 1.5646 percent for each one percent growth in personal income. However, in fiscal 1979-80, Individual Income Tax receipts grew at a rate below the rate of growth of personal income (10.8 percent versus 11.9 percent).¹

Tax receipts from other taxes in the General Fund were overestimated by a total of \$11.4 million, due mostly to the shortfall in personal income for 1979. Transportation Fund receipts were overestimated by \$11.4 million, or 3.1 percent, due to very poor automobile sales in the spring of 1980, and a greater-than-expected decline in gasoline purchases.

With one major and several minor modifications, the elasticity model was applied to fiscal year 1979-80 reported revenues to generate estimates for fiscal year 1980-81, and again applied for fiscal 1981-82. A new KCEA econometric forecast of the Kentucky economy was available, indicating lower growth rates. The combination of a lower base (1979-80 revenues), lower growth rates for personal income, and some modifica-

tions to elasticity coefficients led to a downward revision of the revenue estimates.

The economic assumptions underlying these revenue estimates are: 1) continued restrictive/moderate federal monetary policy, which will allow the money supply to grow at targeted rates, but will not permit excessive growth, even if interest rates rise again; 2) neutral fiscal policy with some changes in the composition of federal spending toward relatively greater defense expenditures; a federal tax cut in 1981, with half going to business and half to consumers—about sufficient to offset rising FICA taxes; 3) the current recession will end no later than September 1980; the recovery will be moderate, so that "full employment" is not restored until the end of 1981, and 4) the estimates of Kentucky personal income and employment are forecasts from the KCEA Quarterly Econometric Model.²

The following table presents revised revenue estimates for the next two fiscal years, and comparable data for 1979-80. Looking first at the General Fund, it can be seen that while the *rate of growth* of tax revenues will accelerate during the next two years, the *levels* of revenues are well below the earlier estimates. The difference in Transportation Fund estimates are smaller. However, Transportation Fund revenues will continue to grow very slowly, and the level of receipts is likely to be insufficient to fund needed programs.

Notes

¹ This level of growth for income tax receipts implies an elasticity coefficient of less than unity. Although there is year-to-year variation in elasticity, the coefficient has not fallen below unity since fiscal 1963-64; the lowest coefficient in the 1970s was 1.11 in fiscal 1970-71.

² The forecast used was published in the *Council of Economic Advisors Annual Report 1980*, p. 51. The methodology used to produce these revenue estimates was described in the June issue of *Review & Perspective*, pp. 10-11. The only major methodological change in this revision was in projecting individual income tax receipts. A study of the cyclical behavior of the elasticity coefficient of this tax during the 1970s indicates that in most years it averages about 1.35, but rises sharply in years when the economy is recovering from a recession. Thus a coefficient of 1.35 was used for fiscal 1980-81, and the statistically estimated coefficient of 1.5646 was used for fiscal 1981-82 (a recovery year).

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GENERAL FUND AND STATE ROAD FUND TAX RECEIPTS
ACTUAL, FISCAL YEAR 1979-80
LYNCH ESTIMATES, FISCAL YEARS 1980-81 AND 1981-82
(Millions of Dollars)

Tax Source	Actual 1979-80	1980-81	July 1980 Revised Estimates		Percent Change
			Percent Change	1981-82	
Sales and Use	607.3	658.4	8.4	718.5	9.1
Individual Income	505.8	580.1	14.7	670.9	15.7
Corporation Income	158.8	166.4	4.8	189.1	13.6
Coal Severance	176.4	195.0	10.5	217.2	11.4
Less Transfer	(32.6)	(42.3) ¹	-	(42.3) ¹	-
Natural Resources Severance	-	9.2	-	10.1	9.8
Other General Fund	366.3	390.8	6.7	418.7	7.1
Total General Fund	1,782.0	1,957.6	9.9	2,182.2	11.5
Motor Fuels	179.7 ²	180.0	0.2	189.0	5.0
Motor Vehicle Usage	97.1	109.3	12.6	124.2	13.6
Coal Severance Transfer	32.6	42.3	-	42.3	-
Other Transportation Fund	53.6	56.3	5.0	59.1	5.0
Total Tax Receipts State Road Fund	363.0 ³	387.9	6.9	414.6	6.9

¹This estimate is based upon existing bond issues only, and reflects a reduction for earned income.

²Excludes motor fuels use tax of \$7.4 million in 1979-80.

³Excludes taxes of \$8.5 million not collected by the state.

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